Review of 2023 general surgery studies from Türkiye registered in ClinicalTrials.gov

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ABSTRACT

Objective: The aim of this study was to closely examine the studies in the field of general surgery registered in ClinicalTrials.gov from Türkiye in 2023.

Material and Methods: In 2023, the studies registered in ClinicalTrials.gov by filtering Türkiye/Türkiye as the localization were examined one by one, and those conducted in the field of general surgery were included in the study. Information such as the ClinicalTrials.gov uploader of these studies, current status of the study, subject, start and end dates, details of the study type, in which centers it was conducted, sponsor information, and data size were recorded. Qualitative variables were expressed as rates and percentages, and quantitative variables were expressed as mean (minimum-maximum).

Results: A total of 86 studies were included. Eighty-four were national (97.7%) and two were international (2.3%). Only 5 (5.8%) were completed. Seventy-seven were single center (89.5%), 9 were multicenter (10.5%). Fifty-seven (66.3%) were interventional studies and 29 (33.7%) were observational. The majority of observational studies were prospective (66.1%) and cohort (55.2%) studies. The most common studies were for supportive treatment (29.1%). Interventional studies were most often on behavioral interventions (30.2%). The mean number of subjects was 154.03. Of the studies, 62.8% were randomized. Most were not blinded (46.5%). The mean study duration was 7.7 (1-48) months. Studies were most frequently conducted in the field of breast cancer (25.6%). On a provincial basis, studies were most frequently conducted in İstanbul (29.1%) and Ankara (17.4%).

Conclusion: This is the first study in which Türkiye/Türkiye-based studies registered in ClinicalTrials.gov were closely analyzed. The most important result of our study is that most of the studies were interventional and randomized. Further studies will provide more detailed information on this subject.

Keywords: ClinicalTrials.gov, general surgery, studies

Table 1. Details of the studies		
Region		
National	84	%97.7
International	2	%2.3
Current Status of The Study		
Patient recruitment has not started	35	%40.7
Patient recruitment started	44	%51.2
Patients invited	2	%2.3
Study completed	5	%5.8
Number of Centers		
Single center	77	%89.5
Very center	9	%10.5
Sponsor		
Official institution (university, hospital)	85	%98.8
Industrial company	1	%1.2
Study Type		
Interventional	57	%66.3
Observational	29	%33.7
Objective		
Protection	10	%11.6
Treatment	21	%24.4
Diagnostic	24	%27.9
Supportive Treatment	25	%29.1
Other	6	%7

Table 1. Details of the studies (continue)		
Intervention		
Medicine	22	%25.6
Device	14	%16.3
Behavior	26	%30.2
Procedure	8	%9.3
Other	16	%18.6
Included population		
Patients	60	%69.8
They are healthy	2	%2.3
Both	24	%27.9
Number of Patients	154.03 (6-5000)	
Randomization		
Randomize	54	%62.8
Not randomized	28	%32.5
Unknown	4	%4.6
Working Time	7.7 (1-48)	

Table 2. Topics and distribution of cities

Topics	Number	Percentage
Proctology	6	%7
Laparoscopic surgery	3	%3.5
Colorectal cancer	4	%4.6
Trauma and emergency surgery	4	%4.6
Obesity surgery	8	%9.3
Endoscopy	7	%8.1
Breast cancer	22	%25.6
Burn	1	%1.2
Operating room equipment	1	%1.2
Hepatopancreaticobiliary surgery	15	%17.4
Transplantation	9	%10.5
Hernia	3	%3.5
Upper GI surgery	3	%3.5
City		
Konya	2	%2.3
Antalya	3	%3.5
Adana	4	%4.6
Mersin	2	%2.3
Ankara	15	%17.4
Kayseri	2	%2.3
Eskişehir	1	%1.2
Kütahya	2	%2.3
Muğla	1	%1.2
Bursa	2	%2.3
Çanakkale	1	%1.2
Amasya	1	%1.2
Yalova	1	%1.2
Gaziantep	1	%1.2
Sivas	3	%3.5
Malatya	3	%3.5
İstanbul	25	%29.1
İzmir	1	%1.2
Samsun	3	%3.5
Erzincan	1	%1.2
Diyarbakır	3	%3.5
Trabzon	1	%1.2
Van	4	%4.6
Erzurum	4	%4.6

A new trocar diameter reduction technique in laparoscopic appendectomy

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ABSTRACT

Objective: Laparoscopy is widely used in general surgery because of the comfort it offers to the patient. It has also been widely used in appendectomy surgeries in recent years. The new trend in laparoscopic surgery is to minimize the invasive procedure as much as possible. For this reason, it is preferred to reduce the number and diameter of trocars as much as possible. In our study, we planned to present our trocar diameter reduction strategy in laparoscopic appendectomy.

Material and Methods: Laparoscopic appendectomy is performed with two 10 mm trocars and one 5 mm trocar. Closure of the appendiceal stump with a clip and removal of the appendix with an endo-bag requires the use of a 10 mm trocar. Therefore, the appendiceal stump was double tied with 2/0 vicryl suture and cut. The surgical glove was tied in the middle and the finger parts were cut and the entrance of the glove was covered with purse silk suture. The prepared endo-bag was transferred from the camera trocar to the bar and the surrounding sutures were kept outside the trocar. After the appendix was placed in the endo-bag, the endo-bag was removed with the help of a suture.

Results: In the early results of our study, no complications were observed in the patients.

Conclusion: The method we presented in laparoscopic appendectomy may help to reduce trocar-related complications by decreasing the trocar diameter.
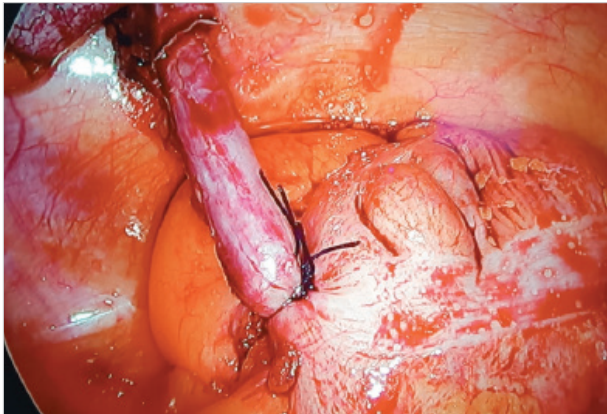
Keywords: Appendectomy, laparoscopy

Figure 1. Ligating the appendix stump. Appendix stump double ligated with 2/0 vicryl suture.

Figure 2. Endo-bag preparation. The glove was tied in the middle, the fingers were cut off and the opening was covered with a silk suture.

Changes in fatty acid binding proteins in donors and recipients in living donor liver transplantation: A prospective case-controlled study evaluating ischemia and reperfusion injury

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ABSTRACT

Objective: The aim of this study was to evaluate the levels of A-FABP, I-FABP and L-FABP as possible biomarkers to elucidate ischemia/reperfusion injury-related graft dysfunction, relaparotomy and early postoperative complications leading to mortality in donors and recipients in living donor liver transplantation.

Material and Methods: From a cohort of 307 patients recipients (n= 158) and donors (n= 149), 55 recipients who underwent living donor liver transplantation and 33 donors who underwent living donor hepatectomy at İnönü University Liver Transplant Institute between June 2020 and February 2021 were included for analysis of a prospective case-control study. Of the recipients, 46 had Clavien-Dindo grades 3 and 4 complications and 9 had a normal postoperative course. The postoperative course of the donors was uneventful. Demographic, clinical, laboratory and operative characteristics were prospectively recorded. Specific laboratory parameters including A-FABP, I-FABP, L-FABP, IL-6 and MDA were analyzed using enzyme-linked immunosorbent assay (ELISA) in the hepatology research laboratories of our institute. Serum samples were collected preoperatively and on postoperative days one, eight and 30 for routine laboratory tests and specific laboratory parameters.

Results: Serum I-FABP, A-FABP, L-FAP and IL-6 were not significantly different between donors and recipients at all time points (p> 0.05). However, MDA was significantly higher in recipients at all time points (p< 0.05). Evaluation of the course of I-FABP, A-FABP, L-FAP, MDA and IL-6 at the determined time points showed that the changes in the levels of these parameters at the determined time points were significant (all, p< 0.05). Specific laboratory parameters did not show a significant change in the recipients over the specified time interval (all, p> 0.05). Preoperative A-FABP was significantly higher in recipients with L-FABP complications (p< 0.05). Preoperative I-FABP, A-FABP and L-FAP were significantly higher in recipients requiring re-laparotomy (p< 0.05).

Conclusion: FABP, A-FABP and L-FABP levels were significantly higher in patients with complications. They may be useful markers for prediction of complications. The predictive value of these biomarkers is higher than that of any other laboratory parameter and does not depend on demographic, clinical and operative data of the patients. Further studies are needed to evaluate the efficacy of these new biomarkers.

Keywords: Ischemia-reperfusion injury, liver transplantation, fatty acid binding proteins

Figure 1. Changes in A. I-FABP, B. A-FABP, C. L-FABP, D. IL-6, E. MDA specific parameters in preoperative and postoperative periods after liver transplantation in recipients.
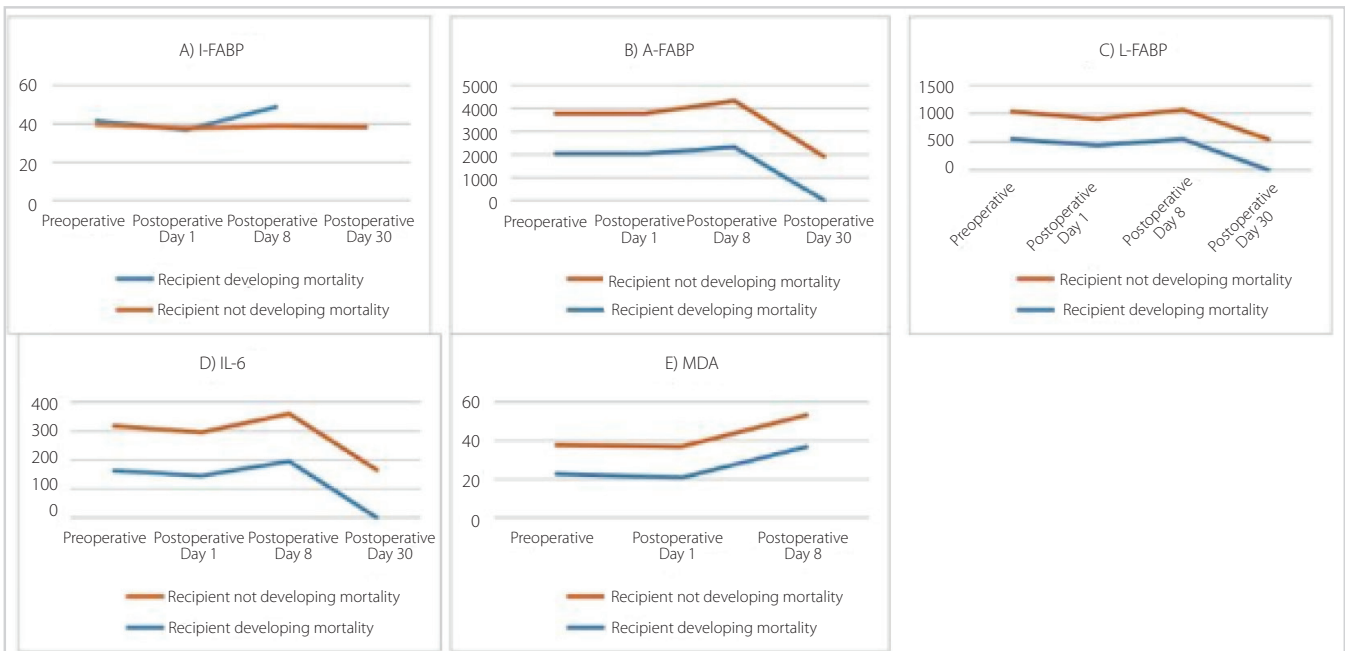

Figure 2. Time course of specific parameters in patients with and without mortality.

Table 1. Distribution of unique parameters by time period in complicated and uncomplicated recipients

	Complicated Recipient	Normal Recipient	p
Age (years)	43 (8-70)	49 (30-61)	0.19
Sex			
Female	21 (%45.7)	4 (%44.4)	0.85
Male	25 (%54.3)	5 (%55.6)	
BMI (kg/m^2)	23.9 (7.7-35.8)	23 (20.76-28.89)	0.59
MELD	40.4 (10.6-41.8)	16.5 (9.2-32.1)	0.51
Child-pugh	9 (5-13)	9 (5-13)	0.95
Graft weight (g)	730 (260-1650)	660 (400-940)	0.62
Operation time (min)	530 (190-1002)	540 (435-750)	0.35
Cold ischemia duration (min)	108 (44-365)	79 (37-112)	0.057
Warm ischemia time (min)	52.5 (22-95)	65 (15-107)	0.68
Intraoperative bleeding amount (mL)	500 (50-5000)	500 (200-2000)	0.41
Intraoperative ascites amount (mL)	250 (0-13000)	500 (0-14000)	0.68
I-FABP preoperative	39.48 (2.48-84)	14.6 (6.9-22.45)	0.084
I-FABP (POD1)	40.5 (12.8-84)	19.27 (9.43-29.12)	0.165
I-FABP (POD8)	23.85 (10.2-84)	18.3 (17.86-18.76)	0.410
I-FAP-(POD30)	21.4 (10.2-84)	13 (12-14)	0.448
A-FABP preoperative	2091.45 (305.5-4200)	885 (418.2-1351.8)	0.024
A-FABP (POD1)	1730 (426.8-4200)	881.8 (668.3-1095.)	0.38
A-FABP (POD8)	1187.6 (697.43-4200)	964 (943.1-985.03)	0.68
A-FABP (POD30)	1328.5 (634.14-4200)	745.8 (720.2-771.4)	0.72
L-FABP Preoperative	479.8 (68.3-1008)	252.5 (152.4-352.3)	0.042
L-FABP (POD1)	547.6 (110.2-1008)	243.9 (204.6-283.2)	0.288
L-FABP (POD8)	344.2 (215.1-1008)	256.9 (243.9-270)	0.588
L-FABP(POD30)	313.02 (207.8-1008)	243.2 (200.1-286.2)	0.868
IL-6 preoperative	135.01 (24.9-336)	89.9 (38.9-140.9)	0.103
IL-6 (POD1)	166.9 (51.5-336)	90.1 (48.9-131.3)	0.271
IL-6 (POD8)	107.4 (54.7-336)	77.7 (70.1-85.3)	0.410
IL-6 (POD30)	115.8 (26-336)	77.5 (61.01-94.13)	0.838
MDA preoperative	13.7 (2.12-50.30)	3.9 (2.9-4.8)	0.255
MDA (POD1)	17.1 (7.3-55.2)	7.3 (5.7-8.9)	0.476
MDA (POD8)	16.9 (4.9-67.6)	16.2 (7.8-24.6)	0.098
ALT preoperative	43 (7-585)	25 (16-54)	0.099
ALT (POD1)	423 (61-1720)	284 (156-1743)	0.585
AST (POD1)	387 (15-1907)	255 (154-2776)	0.285
AST (POD8)	45 (17-288)	35 (15-94)	0.266
AST (POD30)	34 (10-161)	27 (11-134)	0.913
GGT preoperative	83 (21-459)	46 13-349)	0.109
GGT (POD1)	58 (5-255)	46 (19-124)	0.811
GGT (POD8)	168 (22-624)	110 (28-516)	0.335
GGT (POD30)	133 (30-743)	91 (70-261)	0.397
T.Bil preoperative	2.1 (0.33-34)	2.2 (0.95-20.7)	0.617
T.Bil (POD1)	7.1 (2.2-20.1)	4.1 (3.2-11.7)	0.228
T.Bil (POD8)	4.7 (0.87-23)	2.2 (1.2-14.4)	0.311
T.Bil (POD30)	1 (0.33-10.9)	0.75 (0.45-1.5)	0.238

Table 1. Distribution of unique parameters by time period in complicated and uncomplicated recipients (continue)

	Complicated Recipient	Normal Recipient	p
D.Bil preoperative	1.2 (0.17-25.9)	0.95 (0.46-10.6)	0.165
D.Bil (POD1)	3.4 (0.5-10.4)	2.4 (0.83-7.5)	0.169
D.Bil (POD8)	2.9 (0.26-12.1)	1.4 (0.5-10)	0.266
D.Bil (POD30)	0.53 (0.17-7.1)	0.46 (0.28-0.72)	0.413
INR preoperative	1.4 (1-2.78)	1.3 (1.15-2.34)	0.750
INR (POD1)	2.5 (1.5-9.8)	2.9 (1.8-4.6)	0.432
INR (POD8)	1.3 (1.01-1.9)	1.2 (1.1-1.7)	0.473
INR (POD30)	1.08 (0.9-2.56)	1.08 (0.98-1.15)	0.765

Table 2. Distribution of specific parameters in recipients with and without relaparotomy according to time periods

	Recipients Undergoing Relaparatomy			Recipients Without Relaparatomy			
	Median	Minimum	Maximum	Median	Minimum	Maximum	p
IFABP (Preop)	71.29	10.61	84	20.96	2.48	84	0.023
AFABP (Preop)	2111.19	77.8	4200	849.98	1	4200	0.015
LFABP (Preop)	1008	167.48	1008	290.62	1.56	1008	0.043
IL-6 (Preop)	224.25	11.93	336	93.95	0.37	336	0.094
MDA (Preop)	8.18	1.82	67.58	8.18	2.12	62.12	0.899
IFABP (POD1)	49.78	8.8	84	21.09	2.57	84	0.058
AFABP (POD1)	2259.87	44.82	4200	922.44	2.66	4200	0.056
LFABP (POD1)	653.27	19.48	1008	290.62	1.56	1008	0.058
IL-6 (POD1)	215.5	12.87	336	93.2	1.98	336	0.079
MDA (POD1)	13.24	6.06	55.15	13.43	4.24	46.67	0.978
IFABP (POD8)	23.38	8.55	84	23.57	2.4	84	0.930
AFABP (POD8)	1310.70	29.78	4200	994.76	190.34	4200	0.324
LFABP (POD8)	327.71	94.89	1008	307.68	11.48	1008	0.970
IL-6 (POD8)	133.83	17.75	336	92.55	15.11	336	0.725
MDA (POD8)	15.4	5.41	67.58	11.21	3.33	73.33	0.255
IFABP(POD30)	34.64	6.56	84	19.96	9.41	84	0.528
AFABP(POD30)	1562.38	544	4200	1042.64	387.43	4200	0.305
FABP(POD30)	509.09	146.86	1008	295.39	185.48	1008	0.717
IL-6 (POD30)	140.43	5.21	336	102.89	15.11	336	0.560

Laparoscopic transabdominal pre-peritoneal approach for incarcerated inguinal hernias, a single center experience

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ABSTRACT

Objective: Incarcerated inguinal hernia cases are a group that we frequently encounter in the emergency department and are usually treated with open surgery. Although the use of minimally invasive surgical techniques in the treatment of inguinal hernia has increased in recent years, laparoscopic approach is rarely preferred in incarcerated cases presenting to the emergency department. In this study, it was aimed to present our results of the cases treated with laparoscopic trans-abdominal pre-peritoneal approach in our clinic.

Material and Methods: We retrospectively analyzed peri-op findings, post-op results, and post-discharge outpatient clinic data of patients who underwent emergency surgery for incarcerated inguinal hernia and were treated with laparoscopic TAPP approach between September 2017 and September 2022. Exclusion criteria were patients with preoperative findings of perforation or peritonitis that underwent open surgery with an anterior approach.

Results: Of the 20 patients included in the study, 19 (95%) were males, and mean age of the patients was 49 (24-72) years. Mean body mass index of the patients was 26.4 (22.9-33.7). As a result of preoperative anesthesia evaluation, 16 (80%) patients were ASA-II and 4 (20%) patients were ASA-III. In the operation, the hernia sac was reduced into the abdomen under camera vision. In 5 (25%) patients, expansion of the inner ring was required due to reduction difficulty. In 7 (35%) patients with hyperemic intestine in the hernia sac, peristalsis and nutrition were evaluated by waiting and resection was not required. In 2 (10%) patients, necrotic omentum was detected and partial omentectomy was performed. Mean operative time was 94 (65-125) minutes. In the early postoperative period, scrotal edema developed in 3 (15%) patients, scrotal hematoma in 1 (5%) patient, and infection at the port site in 1 (5%) patient. Mean duration of hospitalization was 2.3 (1-5) days. When the outpatient notes of long-term follow-up were analyzed, mean follow-up period was 27 (12-48) months, and recurrence was detected in 1 (5%) patient and open repair was performed.

Conclusion: While the preference for laparoscopic treatment in elective inguinal hernia cases is increasing, the safety and efficacy of laparoscopic approach in emergency cases have not been clarified. When the results of our series are examined, we think that laparoscopic TAPP repair in incarcerated inguinal hernia patients is feasible in terms of surgical safety and efficacy considering low morbidity, appropriate operation time, short hospital stay, early return to daily life and acceptable recurrence rates in selected patients in experienced centers.

Keywords: Emergency laparoscopic surgery, incarcerated inguinal hernia, TAPP

Our 3-year clinical experience in percutaneous endoscopic gastrostomy in general surgery endoscopy unit

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ABSTRACT

Objective: Patients who require nutritional support and have good gastrointestinal system function but who cannot be fed orally for at least four weeks are candidates for percutaneouse endoscopic gastrostomy (PEG). Indications for PEG include various neurological diseases in which swallowing is impaired, oropharyngeal tumors, fascial trauma, inadequate oral intake due to impaired general condition and decompression. In this study, it was aimed to present our clinical experience in patients undergoing PEG procedure in the general surgery endoscopy unit.

Material and Methods: Patients who underwent PEG between June 2020 and February 2023 in the department of general surgery, Gülhane Training and Research Hospital were included in the study. The data of the patients were collected from their file records and demographic data, indications for PEG, early and late complications, and comorbidities were retrospectively analyzed.

Results: Forty-two patients were included in the study. Of the patients, 33 (78.6%) were males and 9 (21.4%) were females. Mean age of the patients was 56.9 years (23-92). Nine (21.4%) patients underwent PEG for maxillofacial trauma, 12 (28.6%) for oral intake disorder (general condition disorder), and 21 (50%) for neurogenic dysphagia. In 35 (83.3%) patients, there were no complications related to the procedure, while 3 (7.1%) patients had tube occlusion and 4 (9.5%) patients had wound infection. While 19 (45%) patients had no comorbidity, 23 (55%) patients had comorbidity. No mortality was observed in any patient due to the procedure. In the six-month follow-up, 9 (21.5%) patients died due to comorbidities.

Conclusion: Enteral nutrition is a much more physiologic method than parenteral nutrition in terms of long-term nutrition and should be started early in patients who cannot start oral intake for a long time. Wound infection and tube occlusion are common complications of PEG procedure. Therefore, care of the feeding tube and wound site is important. Wound care trainings should be provided better in order to reduce complication rates.

Keywords: Percutaneous endoscopic gastrostomy, nutrition, endoscopy

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S-1816

Comparison of preoperative incision drawing and perioperative ultrasonography-assisted drawing in patients scheduled for thyroidectomy

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ABSTRACT

Objective: Comparison of preoperative incision drawing and peroperative ultrasonography-assisted drawing in patients scheduled for thyroidectomy. Thyroidectomy is one of the most frequently performed operations in general surgery clinics. Like every operation, this operation also has complications. We try to minimize the complications by providing maximum exploration during the operation. Recently, there are many studies trying to minimize complications by improving the thyroidectomy technique. However, there are almost no studies dealing with incision size. The thyroidectomy incision is determined preoperatively by most surgeons. This incision may be inadequate after the patients are positioned during the operation. Adequate exploration cannot be achieved during the operation. The aim of our study was to determine this incision by peroperative ultrasonography and to compare it with the preoperative incision.

Material and Methods: We evaluated 40 patients scheduled for thyroidectomy for benign or malignant causes of the thyroid gland. Preoperative incision was determined in these patients by sitting on the operating table by the surgeon planning the operation. The size of this incision and its distance from the anatomical points used as the basis for the incision were recorded prospectively. Then the same surgeon evaluated the thyroid gland planned to be operated with the help of peroperative ultrasonography. The size of this incision and the distance to the anatomical points based on which the incision was determined were recorded with prospective data. In addition, the age, gender, height, weight, body mass index (BMI), size of large nodules, presence of tumor in the pathology, and the size of tumor if present, were also prospectively recorded. These data were statistically compared with appropriate tests. $p < 0.05$ was considered significant.

Results: The tests showed that the preoperative incision size was larger than the intraoperative incision size. The distance of the preoperative incision to the thyroid cartilage was greater than the distance of the intraoperative incision to the thyroid cartilage. The incision in the intraoperative period was smaller.

Conclusion: Intraoperative incision is closer to the thyroid cartilage and thus provides a more comfortable exploration. In addition, cosmetically more acceptable results are obtained. Future studies in larger series using more parameters will provide more comprehensive and reliable results.

Keywords: Thyroidectomy incision, intraoperative ultrasonography, thyroidectomy complications

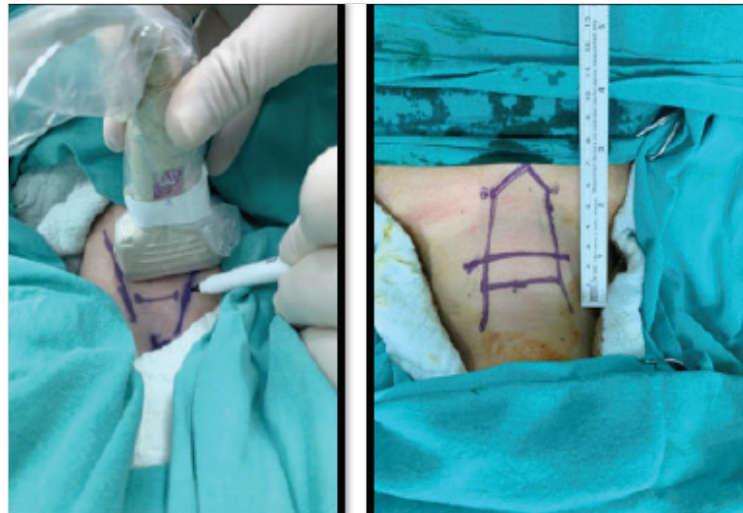**Figure 1.** Determination of preopreative anatomical points and incision.

Figure 2. Evaluation of the thyroid gland with peroperative ultrasonography, determination of the incision and measurement of the incision size and distance to anatomical points.

Table 1. Incision statistics in preoperative and intraoperative periods

Incision	Pre/Intra	n	Min.	Med.	X	S.S.	Max.
Size	Preoperative	40	3.500	5.5857	5.875	1.762	13.400
	Intraoperative	40	3.200	4.800	5.230	1.621	10.500
Distance to thyroid cartilage	Preoperative	40	1.000	2.765	2.765	1.144	6.500
	Intraoperative	40	1.000	2.300	2.515	1.050	6.000
Distance to the suprasternal notch	Preoperative	40	2.000	3.500	3.720	0.995	6.000
	Intraoperative	40	1.500	4.000	3.708	0.959	5.500
Distance to right SCM	Preoperative	40	0.700	1.900	1.943	0.917	5.000
	Intraoperative	40	0.800	1.900	1.883	0.714	3.200
Case distance to left SCM	Preoperative	40	0.800	2.000	1.828	0.687	3.000
	Intraoperative	40	1.000	2.000	1.883	0.573	3.100

Med: Median, X: Mean, SD: Standard deviation, Min: Minimum, Max: Maximum.

Table 2. Wilcoxon sign-rank test results examining the differences between preoperative and intraoperative periods

Incision	Pre/Intra	n	X ± S.S	R_{XY}	r	Wilcoxon
Size	Preoperative	40	5.875 ± 1.762	0.884	+19.43	Z= -4.498*
	Intraoperative	40	5.230 ± 1.621		-20.33	Sig.= 0.000
Distance to thyroid cartilage	Preoperative	40	5.875 ± 1.762	0.306	+18.17	Z= -2.277*
	Intraoperative	40	2.515 ± 1.050		-23.78	Sig.= 0.023
Distance to the suprasternal notch	Preoperative	40	3.720 ± 0.995	0.746	+17.18	Z= -0.468
	Intraoperative	40	3.708 ± 0.959		-19.1	Sig.= 0.640
Distance to right SCM	Preoperative	40	1.943 ± 0.917	0.443	+14.82	Z= -0.079
	Intraoperative	40	1.883 ± 0.714		-17.43	Sig.= 0.937
Distance to Sol SCM	Preoperative	40	1.828 ± 0.687	0.505	+15.16	Z= -0.403
	Intraoperative	40	1.883 ± 0.573		-17.84	Sig.= 0.687

*(5%) means that the hypothesis H0 is rejected at the significance level, Wilcoxon sign rank test for H0: There is no difference between the means of the compared periods. X: Mean, SD: Standard deviation, RXY: Correlation of the two periods, r: Rank mean, +: Rank mean in positive direction, -: Rank mean in negative direction, z: Wilcoxon z test statistic.

S-2028

Detection of tumor tissue specific micro-RNAs in gastric cancer

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ABSTRACT

Objective: Gastric cancers are the fifth most common cancer type in the world and have a high mortality rate. Effective markers that can be used in the diagnosis and prognosis of gastric cancer have not been found yet. In recent years, it has been shown that there is a relationship between the levels of microRNAs (miRNAs) in tissues and the pathological behavior of cancerous tissues. In this study, it was planned to evaluate the relationship between the expression changes of miRNAs and pathologic features in gastric cancer.

Material and Methods: The expression levels of miRNAs (miR-375-3p, miR-148a-3p, miR-196a-5p, miR-376c-3p, miR-129-5p, miR-34c-5p, miR-662, miR-767-5p) were compared in samples obtained from cancerous and normal gastric tissues of 20 patients who were pathologically diagnosed with gastric cancer and operated between March 2018 and April 2019. The relationship between the expression levels of miRNAs and demographic, clinical and pathologic data of the patients were analyzed.

Results: As a result of the analysis, miRNAs were less expressed in tumorous tissues compared to normal tissues; when we looked at each miRNA individually in tumorous and normal tissues, it was observed that the expression of miRNAs that were significantly under-expressed in tumorous tissues moved in a narrower range. This suggests that the expression control of miRNAs is stronger in tumor tissue. When gastric cancerous tissue was compared with healthy gastric tissue, miR-375-3p, miR-196a-5p, miR-376c-3p, miR-129-5p, miR-34c-5p, miR-767-5p (p= 0.018, p= 0.003, p= 0.006, p= 0.037, p= 0.016, p= 0.001) levels decreased. miR-662 level decreased more with increasing age (p= 0.049), decreased levels of miR-129-3p and miR-34c-5p correlated with increased number of metastatic lymph nodes (p= 0.036, p= 0.020) and decreased levels of miR-376c-3p increased with smoking (p= 0.043). When hierarchical clustering was performed by adding age, number of metastatic lymph nodes and smoking using the changes in the expression of miRNAs, it is seen that miRNAs show similar expressions in patients with smoking. In addition, miR-148a-3p shows different expressions from other miRNAs, while miR-767 and miR-375-3p show similar expressions.

Conclusion: In this study, we showed that miR-375-3p, miR-196a-5p, miR-376c-3p, miR-129-5p, miR-34c-5p and, for the first time in the literature as of the acceptance date of the thesis, miR-767-5p are diagnostic for gastric cancer. We think that tumor biogenesis will be better understood by investigating the target mRNAs of these miRNAs in future studies.

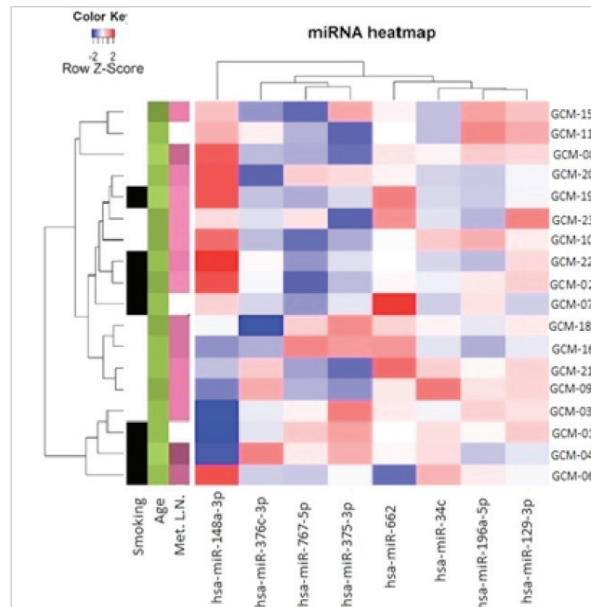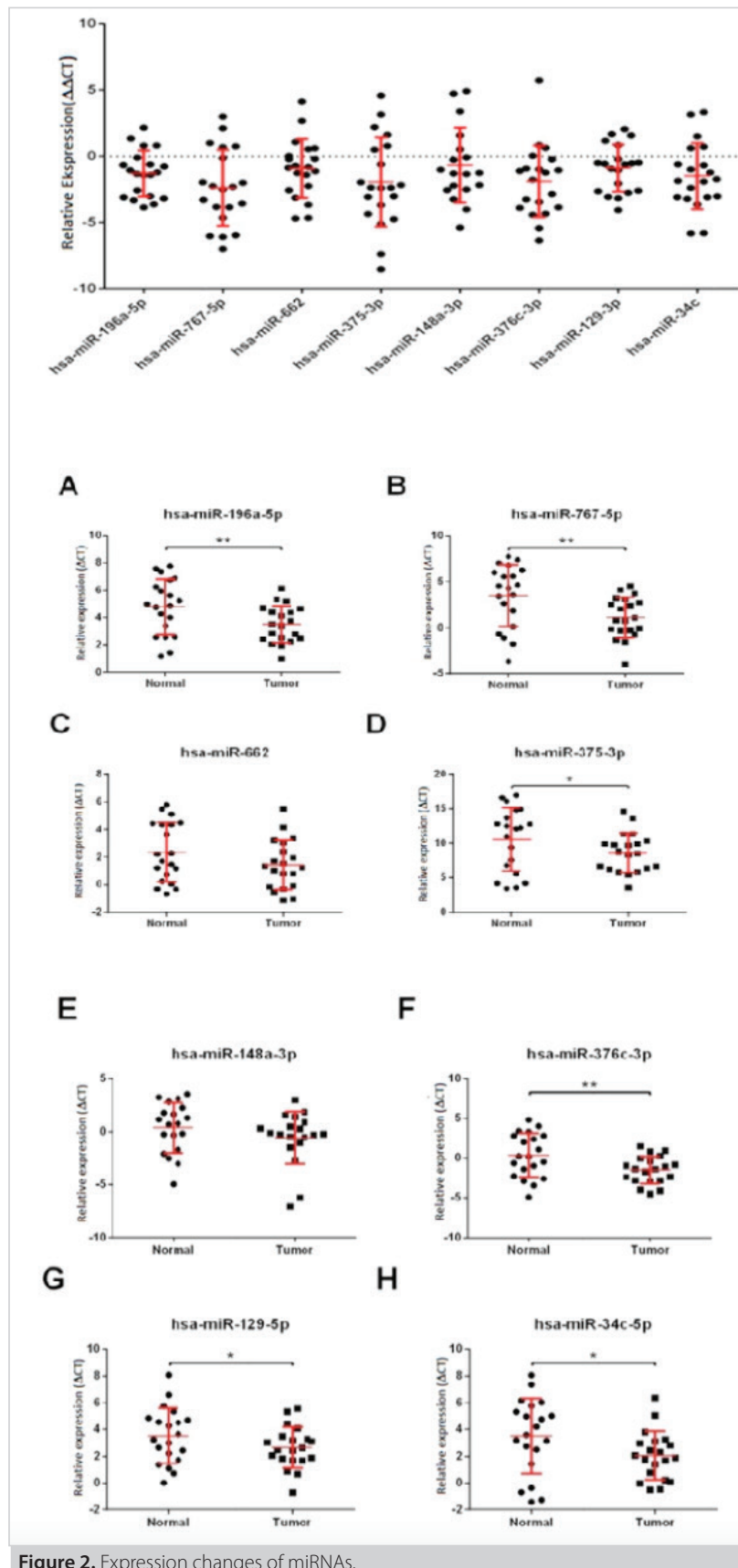**Keywords:** Micro-RNA, gastric adenocarcinoma, gastric cancerous tissue

Figure 1. Hierarchical clustering and heat map of miRNAs.

Figure 2. Expression changes of miRNAs.

Table 1.	
Variables	
Age (years)	Mean Age= 64.9 ± 13.8
<60 years	7 patients 35% / Mean 50 ± 8.75
>60 years	13 patients 65% / Mean 72.92 ± 8.01
Sex	
Female	3 patients (15%)
Male	17 patients (85%)
Helicobacter pylori	3 patients (15%)
Smoking	9 patients (45%)
Proton pump inhibitor use	5 patients (20%)
Family history	1 patient (5%)
Blood Type	
A Rh (+)	8 patients (40%)
0 RH (+)	5 patients (25%)
B Rh (+)	4 patients (20%)
A Rh (-)	1 patient (5%)
0 Rh (-)	1 patient (5%)
AB Rh (+)	1 patient (5%)
Preoperative Tumor Markers	
CEA (ng/mL)	12.94 ± 21.75 (n= 0-5)
CA19-9 (U/mL)	122.64 ± 217.83 (n= 0-27)
AFP (ng/mL)	2.84 ± .60 (0-7)
Tumor Location	
Cardiac	10 patients (50%)
Non-cardiac	10 patients (50%)
Differentiation	
Less differentiated	7 patients (35%)
Moderately differentiated	11 patients (55%)
Well differentiated	2 patients (10%)
Borman Classification	
Type 1	9 patients (45%)
Type 2	4 patients (20%)
Type 3	7 patients (35%)
Pathological Tumor Stage	
pT1	1 patient (5%)
pT2	0
pT3	13 patients (65%)
pT4	6 patients (30%)
Pathologic Lymph Node Stage	
pN0	3 patients (15%)
pN1	4 patients (20%)
pN2	7 patients (35%)
pN3	6 patients (30%)
Presence of Lymphovascular Invasion	18 patients (90%)
Presence of Nerve Invasion	14 patients (60%)
TNM Staging	
Phase I	1 patient (5%)
Phase II	5 patients (25%)
Phase III	14 patients (60%)

Table 2. Demographic, clinical, laboratory and pathologic data of the patients

	Tumor and Normal Tissue Exchange		Change with Age		Change with Number of Metastatic Lymph Nodes		Change with smoking
	Mean change (95% confidence interval)	p	r	p	r	p	p
hsa-miR-375-3p	-1.943 (-3.521/-0.365)	**0.018***	-0.16	0.511	0.35	0.134	0.102
hsa-miR-148a-3p	-0.676 (-2.085/0.731)	0.324	-0.32	0.195	0.29	0.239	0.244
hsa-miR-196a-5p	-1.299 (-2.115/-0.483)	**0.003****	-0.33	0.158	0.43	0.055	0.411
hsa-miR-376c-3p	-1.891 (-3.160/-0.623)	**0.006****	-0.42	0.063	0.41	0.074	0.043*
hsa-miR-129-5p	-0.892 (-1.726/-0.059)	**0.037***	-0.32	0.172	0.47	**0.036***	0.149
hsa-miR-34c-5p	-1.482 (-2.650/-0.314)	**0.016***	-0.38	0.102	0.51	**0.020***	0.274
hsa-miR-662	-0.922 (-1.964/0.118)	0.079	-0.44	0.049*	0.21	0.369	0.194
hsa-miR-767-5p	-2.387 (3.735/-1.040)	**0.001****	-0.33	0.156	0.40	0.076	0.344

*: p< 0.05.
**: p< 0.01. Comparison of miRNA expression changes in gastric cancer patients

S-2148

Video case report of a rare parathyroid pathology: Contributions of indocyanine green angiography to mediastinal parathyroid surgery

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ABSTRACT

Objective: Mediastinal parathyroid adenomas are a rare ectopic parathyroid pathology. Surgery is recognized as the most effective treatment modality. Various imaging modalities such as ultrasonography (USG), scintigraphy, 4D computed tomography (4D-CT) are used to determine preoperative localization. Nowadays, the use of intraoperative auxiliary techniques is also recommended to increase the success rate of surgical intervention and to support minimally invasive surgery. In our case report, it was aimed to present a case in which we performed sternotomy with intraoperative indocyanine green (ICG) angiography in a case of mediastinally located primary hyperparathyroidism (pHPT), which has not been studied in the literature so far.

Material and Methods: A 55-year-old female patient was examined for bone pain and recurrent kidney stones, and hypercalcemia and elevated parathormone levels were detected. After the indication for surgery, no focus was found on USG, but scintigraphy and 4D-CT showed a suspicious focus of adenoma approximately 1.5 cm in size in the retrosternal area. Sternotomy and mediastinal exploration was decided and the patient was operated under neuromonitoring. The anterior mediastinum was opened by sternotomy. Intraoperative ICG was given and the mediastinum was visualized. Dissection was started in the area with intense ICG uptake anterior to the arcus aorta. The enlarged parathyroid tissue in the mediastinal fatty tissue was dissected and removed. When ICG was performed again, it was realized that thymic tissue was also involved and bilateral total thymectomy was performed. Intraoperative parathormone (PTH) measurement showed a decrease in PTH and the operation was terminated.

Results: Parathyroid angiography is an imaging modality in which autofluorosan and ICG dye are used together. It contributes to decrease the operation time and dissection width. It has especially strong contributions to the minimally invasive surgical orientation. It also shows perfusion of the parathyroid glands by showing tissue vascularization. As in our case, it can be a guide in cases where preoperative imaging is doubtful or undetectable. In addition, if it detects the presence of a focus other than the excised adenoma, it reduces the rates of persistent hyperparathyroidism.

Conclusion: Intraoperative techniques can be used for localization and screening for additional foci in mediastinal pHPT cases. In cases of major surgical interventions such as sternotomy, ICG angiography can be used to prevent persistent hyperparathyroidism and secondary interventions.

Keywords: Primary hyperparathyroidism, indocyanine green angiography, sternotomy
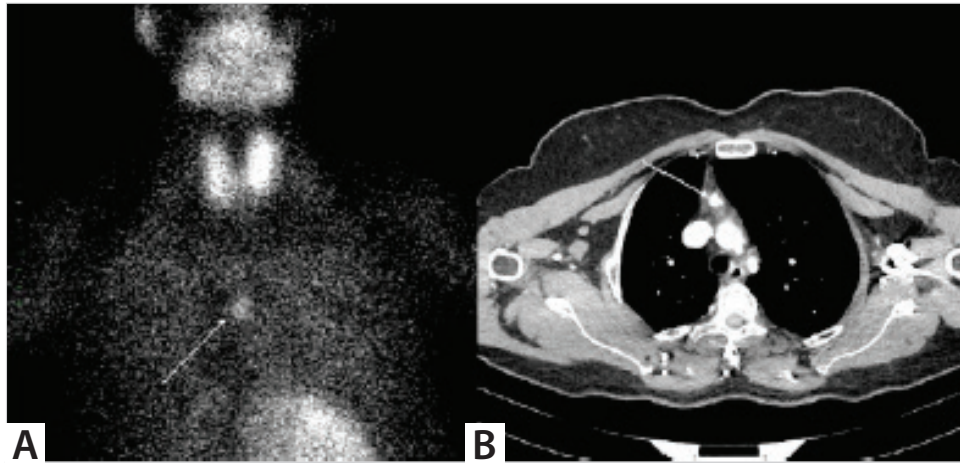
Figure 1. A. Ectopic mediastinal parathyroid adenoma (white arrow), Technetium-99m-sestamibi scintigraphy image. **B.** 4D-CT axial section image of ectopic mediastinal parathyroid adenoma (white arrow).
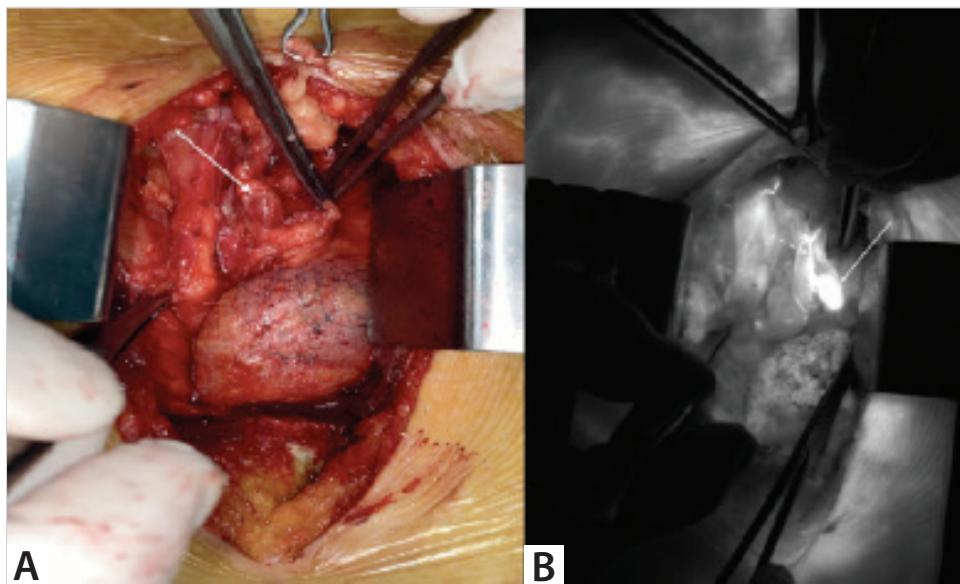

Figure 2. A. Intraoperative image of the ectopic parathyroid adenoma (white arrow) and the operating lobe. **B.** Black and white image of ectopic parathyroid adenoma (white arrow) and parathyroid artery (white dashed arrow) on SPY Elite® system after ICG injection.

The role of indocyanine green (ICG) in the delineation of the parathyroid gland in thyroid surgery

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ABSTRACT

Objective: Hypoparathyroidism is one of the most common complications after thyroid surgery. The most common causes of hypoparathyroidism are surgical trauma to the parathyroid glands, removal of the parathyroid glands together with the thyroid or devascularization of the parathyroid glands. In this study, it was aimed to prevent hypoparathyroidism that may develop after thyroidectomy by performing intraoperative angiography of the parathyroid glands with indocyanine green (ICG) in patients who underwent total thyroidectomy for various reasons and protecting the parathyroid glands without damaging them.

Material and Methods: Patients undergoing total thyroidectomy underwent intraoperative imaging of the parathyroid glands with a non-radioactive infrared device (SPY) using intravenous ICG.

Results: Intraoperative parathyroid angiography with ICG was performed in 40 patients who underwent total thyroidectomy. Thirty-three of the patients had at least one well vascularized parathyroid gland. Parathormone levels on postoperative day one and day seven were within normal ranges in all 33 patients. Only one patients had asymptomatic hypocalcemia. Mean postoperative day one parathormone level was 38.7 ng/L and postoperative day seven parathormone level was 42.3 ng/L. Mean calcium level was 8.8 mg/dL on postoperative day one and 8.9 mg/dL on postoperative day seven. Transient hypoparathyroidism occurred in three of seven patients who were not well vascularized by parathyroid angiography, but symptomatic hypocalcemia did not occur. No permanent hypoparathyroidism occurred in any patient.

Conclusion: Patients with normal parathormone levels one day postop and at least one parathyroid gland visualized by intraoperative indocyanine green angiography did not require postop hypoparathyroidism treatment. Indocyanine green angiography can be used as a method to prevent postop hypoparathyroidism in patients undergoing thyroidectomy.

Keywords: Parathyroidism, indocyanine green, hypoparathyroidism

Development and evaluation of modular training program on basic subjects in general surgery residency training

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ABSTRACT

Objective: Medical residency training is an organized program offered to residents under guidance and supervision. The development of lifelong learning skills, maintenance of competence and gaining professionalism in residents are within the scope of the specialty training process. Therefore, training programs should be organized in a way to ensure that a specialist gains the knowledge, skills, and attitudes he/she needs while practicing his/her profession. In this study, it was aimed to evaluate the residents before and after the training module.

Material and Methods: Ten commonly accepted topics in the field of general surgery of the curriculum formation and standard setting system of the medical specialization board were selected. These topics include 1) Asepsis, washing and dressing 2) Basic surgical instruments 3) Surgical knot techniques 4) Simple sewing techniques 5) Urinary catheter insertion 6) Excisional biopsy 7)Laparotomy and closure 8) Nasogastric catheter placement 9) Abdominal examination 10) Basic laparoscopy skills. Audio-visual modules for these ten topics were prepared and uploaded to the computers in the

general surgery department and 25 residents in the department of general surgery were given access to these modules for 60 days. At least two months after the distribution of the modules, the extent to which the objectives were achieved was evaluated by a single faculty member by looking at the bedside, operating room, rounds and daily practice activities of the residents.

Results: The maximum score that each research assistant can collect if he/she is able to complete the stages defined by all modules is 380 points. Pre-test and post-test averages are presented according to seniority (Table 1). Non-parametric Mann-Whitney U test was used to test the significance of the difference between the pre-test and post-test averages of first-year and fifth-year residents. The difference between the pre-test and post-test means of junior and senior residents was found to be statistically significant ($p < 0.05$) (Table 2). The pre-test and post-test means were significant in all topics.

Conclusion: Utilizing developing technology and new learning models in the planning of surgical education can provide faster achievement of learning goals and can be a very effective option for distance education when there is an unexpected pandemic-like situation that affects the whole world and requires suspension of education, which was not yet the case at the time this study was planned.

Keywords: Education, module, medical specialty

Table 1. Pre- and post- test results vs. seniority

Seniority (years)	Pre-Test	Final Test
1	174.80	282.20
2	245.80	346.40
3	254.50	329.75
4	277.71	360.86
5	305.00	366.00
General	251.40	338.08

Table 2. First and fifth year resident's pre- and post- test results

	First Year (n= 5)	Fifth Year (n= 4)	p
Pre-test	174.80	305.00	0.014
Final test	282.20	366.00	0.014

S-2746

Use of myeloid-derived suppressor cell level in the evaluation of breast cancer progression and aggressiveness in clinical practice

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ABSTRACT

Objective: Breast cancer is the most common cancer among women worldwide, with over one million women diagnosed with breast cancer each year. With the widespread use of screening programs, the number of patients diagnosed with breast cancer has increased. Although disease-specific mortality decreases with early diagnosis, breast cancer-specific five-year survival is between 88-96% even in early-stage patients. Breast cancer patients are followed closely with radiological examinations after treatment. In this study, it was aimed to contribute to the improvement of diagnosis and follow-up processes with tumor immunology in breast cancer, whose incidence is increasing, and mortality remains important.

Material and Methods: Peripheral blood myeloid derived suppressor cell (MDSC) levels of 55 newly diagnosed breast cancer patients and post-treatment MDSC levels of 13 patients one year after initial diagnosis were analyzed at Gülhane Training and Research Hospital. In order to obtain low-density myeloid subpopulations, Ficoll 1077 density gradient separation was performed and those with high-density myeloid subtypes were collected from cells and erythrocytes below the Ficoll 1077 fraction. The collected cells were separated by fluorescence activated cell sorting method and MDSC subgroup analysis was performed.

Results: MDSC subtypes were compared within breast cancer subtypes and although PMN-MDSC levels were higher in triple negative breast cancer patients, this difference was not statistically significant. When the MDSC levels at the time of diagnosis and in the first year of treatment were analyzed

according to subgroups, it was observed that the MDSC level decreased in triple negative patients, but this difference was not statistically significant. In the follow-up, it was observed that the first diagnosis MDSC level of a patient with metastatic course was higher than patients with similar stage and molecular subtype, but statistical analysis could not be performed because there was only one patient.

Conclusion: The present results were consistent with the studies in the literature showing that MDSC level is a stage-independent prognostic factor in different tumors (e.g. gastric tumor). Our long-term results and new studies are needed to answer the question whether MDSC levels can be evaluated as a prognostic factor independent of stage and molecular subtype in breast cancer.

Keywords: Myeloid-derived suppressor cell, breast cancer
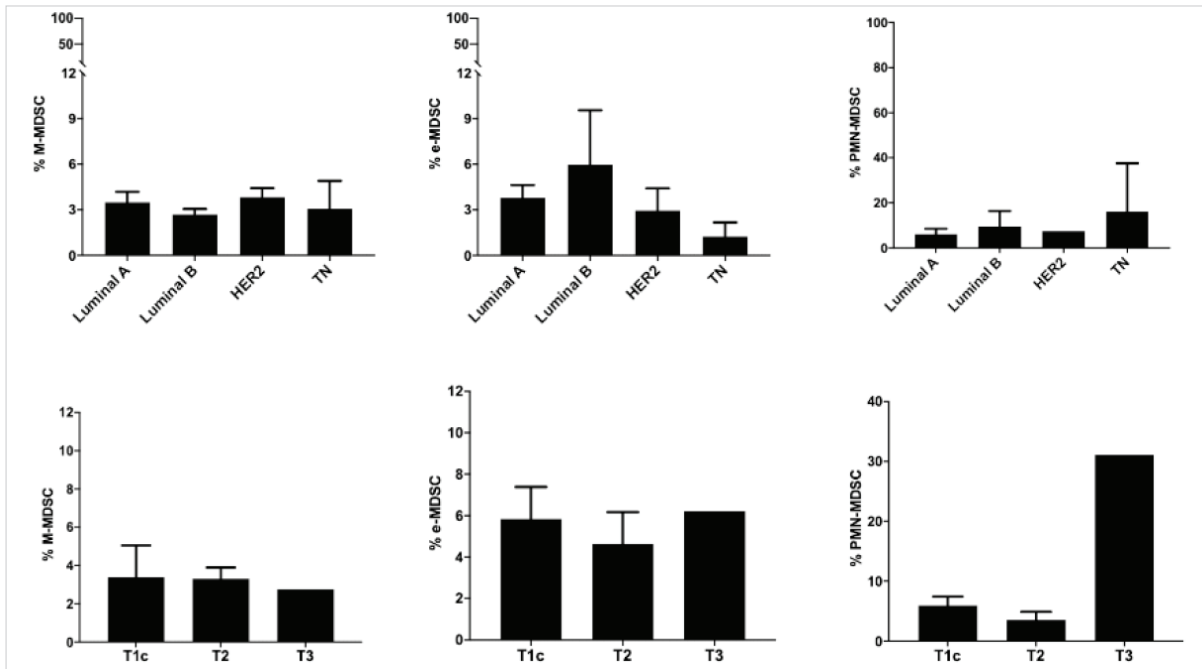
Figure 1. MDSC levels by biological subtype and tumor size. MDSC levels before and after treatment.
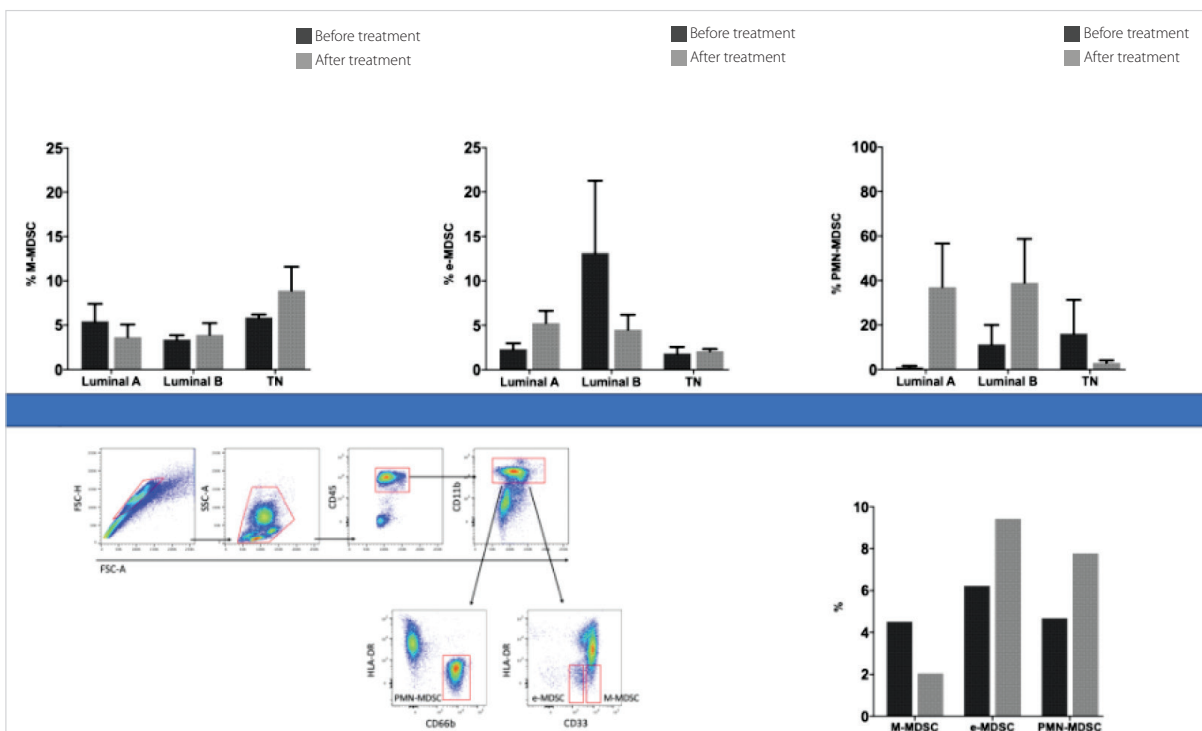
Figure 2. Closure strategy and metastatic patient MDSC level change.

S-2908

Accuracy and comparison of 4-dimensional computed tomography, ultrasonography, parathyroid scintigraphy, and intraoperative indocyanine green angiography for localization in primary hyperparathyroidism

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ABSTRACT

Objective: Primary hyperparathyroidism (PHPT) is an endocrine disorder caused by excessive secretion of parathormone (PTH) by the parathyroid glands. Imaging modalities used in the diagnosis and treatment of PHPT include ultrasonography, parathyroid scintigraphy, 4D computed tomography (4D CT) and intraoperative indocyanine green angiography (ICG). The aim of this study was to evaluate the accuracy and comparison of 4D CT, USG, parathyroid scintigraphy and ICG for localization in patients with primary hyperparathyroidism.

Material and Methods: This study included 46 patients who were diagnosed with primary hyperparathyroidism and underwent surgical treatment between 2020 and 2023. Age, sex, clinical and laboratory findings, imaging results, pathology reports and postoperative follow-up data were analyzed. USG, parathyroid scintigraphy, 4D CT and ICG were performed in all patients. The accuracy of imaging methods and pathology reports were evaluated by comparing them with operative data.

Results: Of the 46 patients included in the study, 40 were females (87%) and six were males (13%). Mean age was 52.3 (min= 31, max= 78) years. Parathyroid adenoma was found in 80.4%, parathyroid hyperplasia in 17.4% and parathyroid neoplasm in 2.2% (one patient). The correct localization rate of the pathologic parathyroid gland was 73.9% with USG, 73.9% with scintigraphy, 84.8% with 4D CT and 87% with ICG angiography. There was no statistically significant difference between these methods (p> 0.05).

Conclusion: This study demonstrates the accuracy and comparison of 4D CT, USG, parathyroid scintigraphy and ICG angiography in the localization of primary hyperparathyroidism. Success in the surgical treatment of primary hyperparathyroidism depends on accurate localization of the adenoma. The addition of intraoperative adjunctive techniques to preoperative localization studies increases the total cost, but it is important because of their potential to reduce secondary surgical interventions. The complication rates and costs of these repeated surgical procedures are much higher. In our study, four-dimensional CT and ICG angiography were found to be more successful, although there was no statistically significant difference when comparing their diagnostic efficiency in determining adenoma localization. Confirmation of adenoma localization by intraoperative ICG angiography, especially when intraoperative intact parathormone study is not technically feasible or in the presence of discordance between preoperative imaging modalities, may help to avoid bilateral neck exploration.

Keywords: Primary hyperparathyroidism, four-dimensional computed tomography, indocyanine green angiography
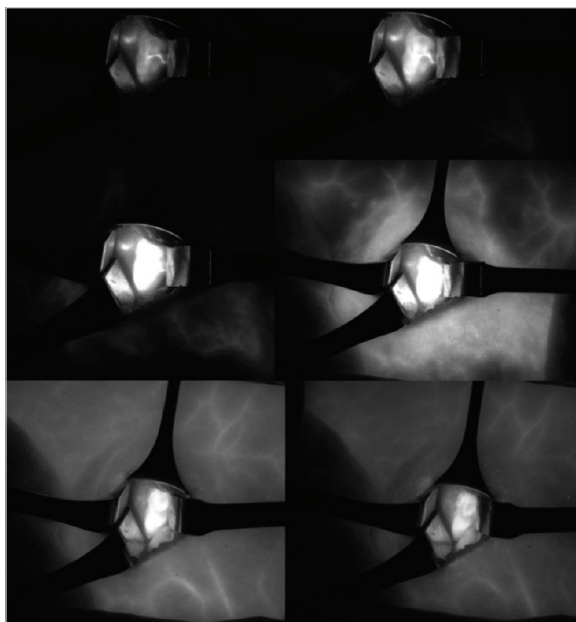
Figure 1. Image of parathyroid adenoma with indocyanine. Early angiography images and late washout images are seen respectively. Intraoperative parathyroid angiography.
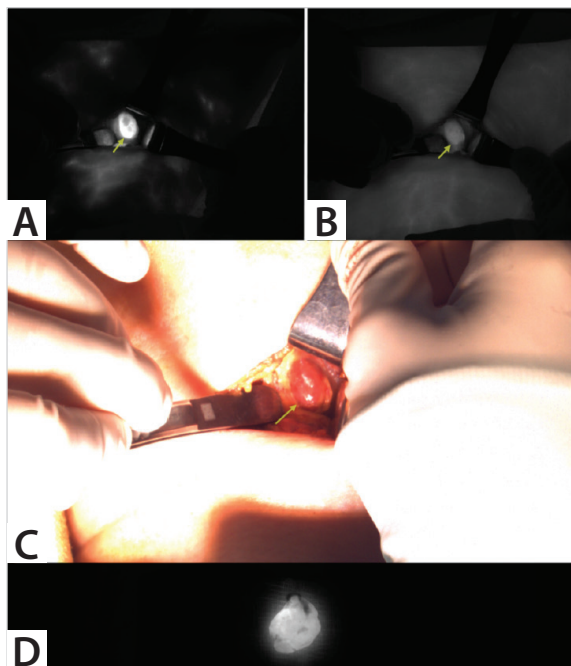

Figure 2. A. Early angiography images, **B.** Late washout images, **C.** Adenoma image found at surgery, **D.** Fluorescence image after excision of parathyroid adenoma.

Table 1. Comparison of imaging modalities in PHPT		
	Frequency	**Percentage %**
USG false	12	26.1
USG true	34	73.9
Cynigraphy is wrong	12	26.1
Cynicism is true	34	73.9
4DBT false	7	15.2
4DBT true	39	84.8
ICG false	6	13
ICG true	40	87

Table 2. Numerical data of imaging modalities according to abnormal parathyroid gland detection status. Statistical comparison of imaging methods with each other			
	False	**True**	**Sig.**
Knowing the adenoma location with USG	12	34	.217
Knowing the adenoma location with scintigraphy	12	34	.217
Knowing the adenoma location with CT	7	39	.217
Knowing the adenoma location with ICG	6	40	.217

Investigation of voice changes before thyroid surgery with machine learning methods

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ABSTRACT

Objective: The study aims to understand the clinical significance of these changes and the potential impact of surgical interventions by examining common vocal changes before thyroid surgery.

Material and Methods: The study had a prospective design and data sets were created from the Saarbruecken voice dataset and the "a" and "i" sounds of 126 individuals (34 males, 92 females) in two groups of healthy and thyroid surgery candidates obtained from our clinic, and then processed with signal processing methods and extracted features. These features were used to classify healthy and sick subjects using support vector machines (cubic and quadratic), k-nearest neighbor (k= 5 and k= 7) and ensemble learning (gentleboost and bag) classifiers. After the attributes that were effective in the classification of healthy and patient groups were determined by Shapley value method, Kruskal-Wallis H test with Post Hoc Tamhane's T2 test, Mann-Whitney U Test and Spearman correlation test were used to evaluate the changes in attributes.

Results: The laryngoscopies of the thyroid surgery candidates included in the study performed in the ENT clinic were normal. All machine learning methods achieved 94.40%-100.00% success in healthy-diseased group discrimination. Shapley analysis identified mid-frequency power, spectral entropy, formant-1 energy and formant-2 energy as effective features for healthy-diseased discrimination; mid-frequency power, formant-2 bandwidth and formant-2 for diseased-healthy "a" sounds discrimination; formant-1, formant-2 bandwidth, formant-2 and mid-frequency power as effective features for "i" sound discrimination in diseased and healthy groups. According to this evaluation, these attributes are effective in the discrimination of healthy-diseased, "a" sounds and "i" sounds. The selection of these attributes is important for improving classification performance and obtaining accurate results. In addition, statistically significant associations (p< 0.05) were found between effective attributes and presence of nodules, sex, smoking, and thyroid gland volume.

Conclusion: All patients who are candidates for thyroid surgery have a voice disorder, and it is recommended that patients should be evaluated for voice disorder during their previous follow-up and treatment. It is observed that machine learning methods are effective in these evaluations.

Keywords: Machine learning, thyroid, voice processing

Endoscopic balloon dilatation with the randezvous technique: A new and extremely rare treatment for completely occluded anastomotic stenosis after anastomotic separation: Case report

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ABSTRACT

Objective: Anastomotic stenosis is an important postoperative complication in colorectal surgery with an incidence of up to 30%. Various factors such as ischemia, anastomotic leakage, inflammation, and radiotherapy are involved in its pathogenesis. Endoscopic dilatation is generally preferred

in treatment, and it is known that reoperation may be required less frequently. However, it has been reported that new approaches such as transanal minimally invasive surgery in cases accompanied by anastomotic separation have started to take place in the literature, but the morbidity is high. In addition, colonoscopic dilatation with the randezvous technique for recanalization of obstruction in the presence of total stricture is becoming increasingly popular among alternative new approaches. Various methods have been developed under the randezvous technique, including endoscopic ultrasound-guided techniques, combination of translumination and digital palpation, and methods in which a small incision is made with a needle knife and then a wire-guided balloon dilator is used.

Material and Methods: Anastomotic separation and subsequent stricture development is a condition that may also occur and rates up to 15% have been reported in the literature. In such cases, if the defect area of anastomotic separation gives the impression of a false lumen in the development of a total stricture, it may not always be possible to distinguish the correct channel; in this case, dilatation of this area carries the risk of further enlarging the defect. In such cases, there are a few recent case reports of simultaneous antegrade-retrograde approach using two endoscopes in patients with stoma.

Results: However, the number of publications on the application of the randezvous technique, which was reported for the first time in 1987 with the name of randezvous technique, is mostly used in biliary pathologies today and is more practical with the help of a guide wire, does not exceed 10 in colonic anastomotic strictures worldwide.

Conclusion: We emphasize endoscopic balloon dilatation with the randezvous technique as an extremely rare but effective and safe procedure with the successful treatment of a case in which the anastomosis was completely occluded after colorectal resection and even a second area was seen giving the impression of a false lumen due to anastomotic separation.

Keywords: Randezvous method, balloon dilatation, anastomotic stricture
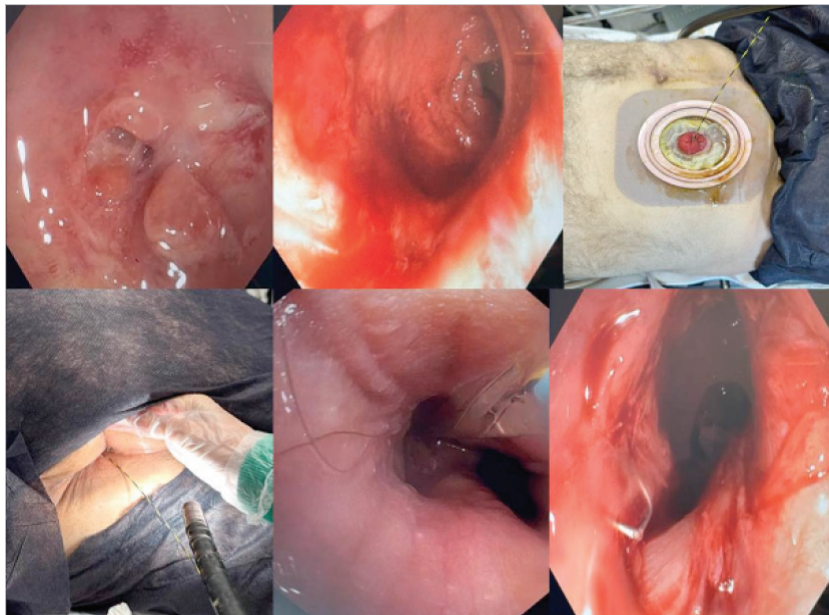

Figure 1. Randezvous technique. **A.** Pseudo-defect area due to total stricture and anastomotic separation at 6 cm when viewed through colonoscope **B.** Lumen viewed through the ileostomy **C.** Leaving the zebra guide through the ileostomy **D.** Advancing the colonoscope through the anal canal over the zebra guide **E.** Hydrostatic balloon dilatation over the zebra guide line **F.** View after dilatation and steroid injection.

S-3391

The effect of sarcopenia status on outcomes in breast cancer patients undergoing breast reconstruction with implants

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ABSTRACT

Objective: Sarcopenia is a reduction in skeletal muscle mass and function. It is a common entity in cancer patients. This is also true for breast cancer. Mastectomy and reconstruction techniques are widely used in the surgical treatment of breast cancer. In this study, we investigated the effects of sarcopenia on postoperative local complications in breast cancer patients undergoing mastectomy and implant-based breast reconstruction. Our study was retrospective, case-control and analytical observational design. Breast cancer patients who underwent mastectomy and implant-based breast reconstruction were included in the analysis. Computed tomography images of 60 patients were analyzed and skeletal muscle cross-sectional areas at the level of the third lumbar vertebra were measured. The patients were divided into two groups as sarcopenia and non-sarcopenia according to the measurement results. The groups were compared in terms of postoperative complications and the relationship between sarcopenia and postoperative local complications was investigated. A total of 60 patients and 80 reconstruction procedures were analyzed. The incidence of postoperative complications was significantly higher in patients with sarcopenia than in those without sarcopenia (p= 0.010). When demographic characteristics (age, sex), individual characteristics (height, weight, body mass index, comorbidities, smoking), tumor characteristics (histological type, grade), other treatment components (neoadjuvant chemotherapy, chemotherapy, radiotherapy) and surgical techniques were analyzed, the groups were similar (p> 0.05). In conclusion, sarcopenia may be a risk factor for postoperative local complications in breast cancer patients undergoing mastectomy and implant-based breast reconstruction.

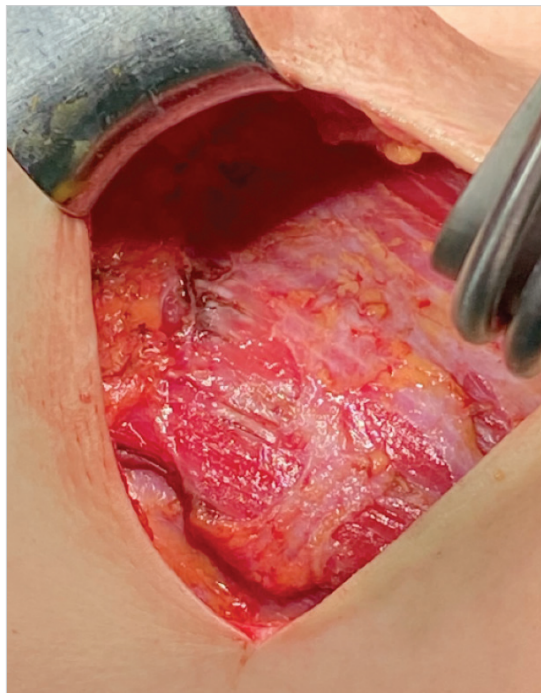**Keywords:** Breast cancer, reconstruction, sarcopenia

Figure 1. Pectoralis major. In a patient in whom direct implant reconstruction was planned, the pectoral muscle after matectomy.

Table 1. Sarcopenia and complications

Variable	All Reconstructions (n= 80) n (%)	Group with Sarcopenia (n= 25) n (%31.3)	Non-Sarcopenia Group (n= 55) n (% 68.8)	p (Sarcopenia Group vs. Non-Sarcopenia Group)
Complication	17 %21.3	11 %44	6 %10.9	0.001
Complication requiring additional surgery	12 %15	8 %32	4 %7.3	0.007
Wound site infection	4 %5	1 %4	3 %5.5	1.000
Dehiscence	1 %1.3	1 %4	0 %0	0.312
Hematoma	1 %1.3	1 %4	0 %0	0.312
Seroma	1 %1.3	1 %4	0 %0	0.312
Rejection (loss) of prosthesis	4 %5	2 %8	2 %3.6	0.585
Breast fluctuation-wrinkling	3 %3.8	2 %8	1 %1.8	0.229
Abnormal Scarring	3 %3.8	3 %12	0 %0	0.028
Complication distribution between groups with and without sarcopenia.				

S-3971

Can phenotypic analysis of suppressor cells of myeloid origin be a complementary marker when deciding treatment of thyroid nodules with Bethesda scoring system?

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ABSTRACT

Objective: Thyroid nodules are one of the most common endocrine disorders. Diagnostic evaluation with ultrasound-guided fine needle aspiration biopsy (FNAB) is recommended for nodules because 5-15% of these nodules are malignant. FNAB yields an unidentifiable result in 15-25% of cases and surgical resection is often recommended, even if the nodule cannot be diagnosed as malignant. Surgical treatment may expose patients with benign lesions to unnecessary surgical risks. The Bethesda classification for reporting thyroid cytology categorizes cytologic findings according to cancer risk, but this classification often fails to provide sufficient evidence to make a decision for follow-up rather than surgery. FNAB is an invasive procedure and cannot predict tumor burden when thyroid cancer is present. In cancer, myeloid-derived suppressor cells (MDSC) are known to be a group of cells that provide information about the tumor microenvironment that may be valuable in disease diagnosis, residual and recurrence detection. In this study, it was aimed to increase the efficacy of the Bethesda scoring system by adding a new marker to the Bethesda scoring system by correlating the percentage of MKBH cell subtypes determined by flow cytometry from cells purified from peripheral blood and fresh nodule tissue with the Bethesda scoring system after thyroidectomy. Currently, the evaluation of whether a thyroid nodule is benign or malignant is often inconclusive even after biopsy. In addition, preoperative staging and prediction of recurrence can be difficult. According to new research, measuring blood levels of MDSC can be used to assess the risk of malignancy and estimate the extent of disease in patients undergoing thyroidectomy for a single thyroid nodule.

Material and Methods: In this study, we comprehensively analyzed the subpopulations of MDSC in fresh tissue from thyroid nodules and peripheral blood of 38 patients who underwent thyroidectomy with various prediagnoses. In addition, correlation analyses were performed to determine the Bethesda score and MDSC cell quantities. The efficacy of MDSC values in subgroups such as atypia of undetermined significance and follicular lesions of undetermined significance was analyzed in making treatment decisions. Isolation and phenotypic characterization of monocytic and granulocytic cells in thyroid pathology specimens and peripheral blood (phenotype analysis and purification of monocyte and granulocyte cells, flow cytometry, morphological analysis), functional analysis of monocytic and granulocytic cells in thyroid tissue and peripheral blood (proliferation assay, ELISA method, ROS and NO production analysis).

Results: Thirty-eight patients were included in the study and the distribution of preop FNAB results of these patients was as follows: 11 benign, 11 AUS/FLUS, 11 malignancy suspect, five malignant there was no significant difference between the subtypes of MDSC studied from peripheral blood and thyroid fresh nodule tissue, the rate of MDRs was found to be significantly increased in patients with malignant post-operative pathology results, and in the atypia of uncertain significance and follicular lesion of uncertain significance (AUS/FLUS) group, the rate of MDSC was significantly increased in patients with malignant post-operative pathology results compared to benign patients (Table 1,2).

Conclusion: MDSC are a cell group that can provide information about the tumor microenvironment and tumor burden. It is a cell group that we can perform phenotypic and functional analysis from tumor tissue and peripheral blood. The new algorithm that our group is trying to bring to the Bethesda scoring system is to define a treatment algorithm that can make a more accurate treatment and thyroidectomy decision in diagnostic subgroups, especially in the AUS/FLUS group, by correlating the MDSC group with fresh tissue/peripheral blood analysis. If MDSC values are also high in patients with AUS/FLUS on FNAB, the rate of malignancy risk detection increases as it provides information about the tumor microenvironment.

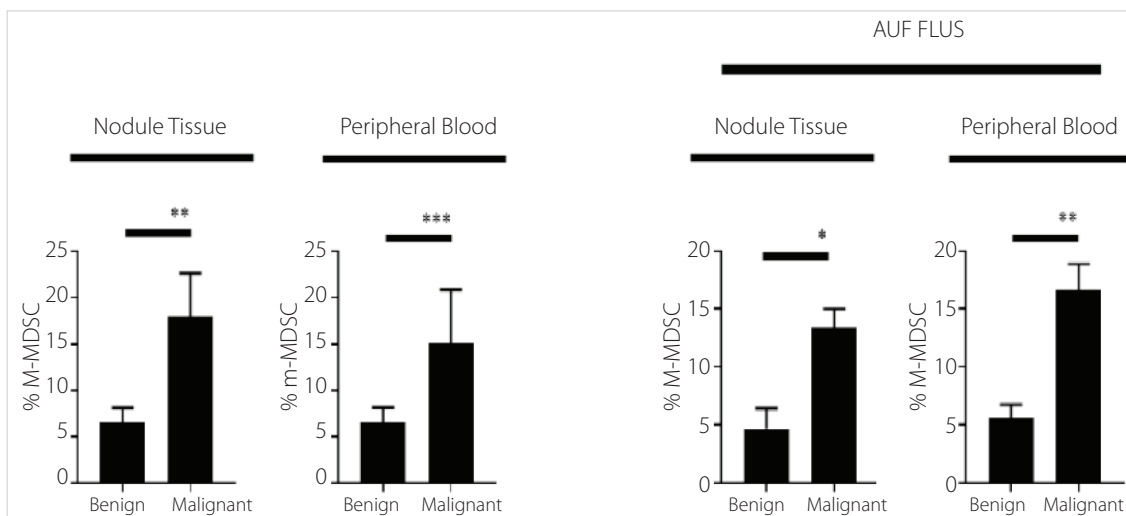**Keywords:** Myeloid suppressor stem cell, Bethesda scoring, thyroid nodule

Figure 1. Comparison of MDSC in nodule tissue and peripheral blood. The similarity of MDSC levels in nodule tissue and peripheral blood is statistically significant. MDSC analysis in AUS/FLUS group.
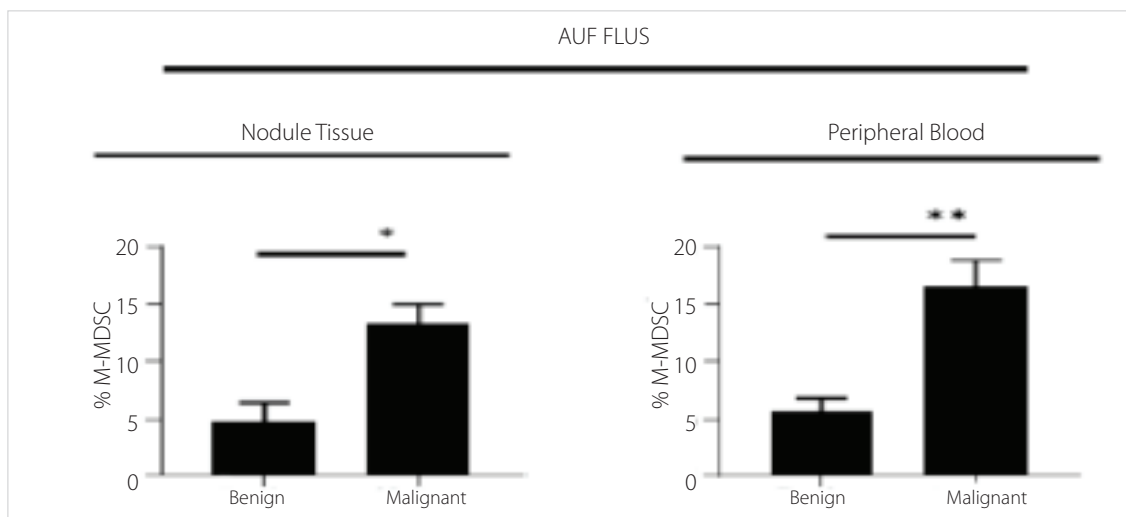

Figure 2. In AUS/FLUS patients, MDSC levels are significantly increased in patients with malignant post operative pathology results compared to benign patients. MDSC analysis in nodule tissue. MDSC analysis of fresh thyroid nodules.

S-3994

Effect of platelet rich plasma (PRP) on intestinal anastomosis healing in rats

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ABSTRACT

Objective: The aim of this study was to test the hypothesis that PRP contributes to anastomotic safety by anastomotic burst pressure, hydroxyproline level and histopathologic evaluations after rats subjected to HIPEC were sacrificed on day five.

Material and Methods: The study was conducted in three groups of 8 Wistar-albino male rats, 8-10 weeks old, weighing between 300-400 g in each group. Group 1 was defined as the control group and saline was administered at 42°C after colonic anastomosis. Group 2 rats were treated with cisplatin at 42°C after colonic anastomosis. Group 3 rats were treated with cisplatin at 42°C after PRP gel application around the colonic anastomosis. Rats were sacrificed by exsanguination method on the 5th postoperative day and comparison was made.

Results: One rat from each group died in the postoperative follow-up due to anesthesia and surgical stress. After sacrifice, one rat from each group had anastomotic leakage (14%). The median burst pressure of Group 1 was the highest at 147.50, and there was a statistically significant relationship with the other groups. There was no difference in burst pressures between Group 2 and Group 3. There was no significant relationship between the mean hydroxyproline levels between the groups. There was no significant difference between the groups in terms of inflammation, epithelial necrosis and fibroblasts. There was a significant difference between Group 3 and the other groups in terms of edema in the anastomotic line. There was a significant difference between Group 1 and the other groups in terms of vascularity.

Conclusion: The study revealed that HIPEC application impairs anastomotic healing and increases the risk of leakage due to low anastomotic burst pressure and hydroxyproline levels and causes edema and necrosis at the wound site. Although the mean values of the mechanical and biochemical quantitative evaluation of PRP on wound healing at the anastomosis site were higher than the HIPEC group, there was no statistically clear effect. PRP application was found to have a positive effect on healing by reducing edema at the wound site. Since there are few studies even as animal experiments and there are no studies on humans, more research is needed on its applicability to clinical practice.
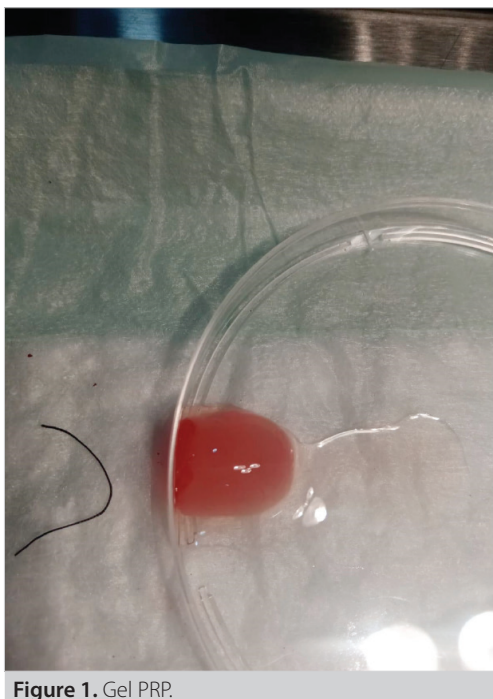
Keywords: Anastomosis, PRP, HIPEC

Figure 1. Gel PRP.

Figure 2. Spreading of gel PRP around the anastomosis.

Table 1. Comparison of anastomotic burst pressure and hydroxyproline values of experimental groups

		Median	p*	p**	p***	p****
Burst Pressure	Group 1	147.50	**0.004**	**0.002**	**0.002**	0.937
	Group 2	90.00				
	Group 3	85.00				
Hydroxyproline level	Group 1	329.40	0.338	0.128	0.710	0.535
	Group 2	245.27				
	Group 3	257.30				

P*: P value for all three groups, P**: P value for group 1 and Group 2, P***: P value for Group 1 and Group 3, P****: p value for Group 2 and Group 3.

S-4430

In vivo modeling of parathyroid conjugate produced by 3D printing from parathyroid tissue in xenograft atymic CD1 mice

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ABSTRACT

Objective: Parathyroid glands are endocrine organs located adjacent to the thyroid gland and are primarily responsible for the regulation of serum calcium levels by secreting parathormone (PTH) in response to hypocalcemia. Iatrogenic removal and/or injury of the parathyroid glands is a common complication of thyroid surgery. Although the mainstay of treatment for hypoparathyroidism is vitamin D analogs and calcium supplements, this therapy does not fully compensate for PTH deficiency; therefore, regeneration and/or replantation of the damaged parathyroid tissue is needed. Tissue engineering is now a promising field with pioneering clinical applications for patients with organ failure. The success of tissue engineering depends on the use of appropriate cells and bioactive factors that stimulate the activity of these cells, as well as scaffolds that are produced to mimic tissue structure and support its function. 3D printing is an advanced strategy for the production of these scaffolds by providing a very precise control over their structure and properties. The aim of this study was to evaluate the in vivo viability, CaSR concentration and hormonal activity of 3D printed parathyroid tissue scaffold produced from human parathyroid gland by xenograft transplantation into athymic nude mice.

Material and Methods: This study was designed as a continuation of the production of parathyroid tissue conjugates with demonstrated calcium level-sensitive and hormonal activity under in vitro conditions and in vivo animal modeling. In the study, primary human parathyroid cells were first isolated and their PTH secretory activity was confirmed by stimulation with different calcium levels after demonstrating their viability in in vitro culture. These cells were then seeded onto 3D printed alginate scaffolds mimicking parathyroid tissue to produce parathyroid tissue replica. Xenograft modeling was performed by implanting each parathyroid tissue substitute into the dorsal flank region of 12 different eight-week-old male CD1 athymic nude mice weighing 20-30 grams, separately in the control and study groups (Figure 1).

Results: After inoculation, scaffolds were separated from the mice, which were clinically monitored under standardized conditions in IVC systems, on the 7th, 14th, 21st and 90th days and cell characterization was performed histopathologically and immunohistochemically with CaSR and monoclonal PTH Ab; PTH production and viability of tissue conjugates until the 3rd month were demonstrated (Figure 2).

Conclusion: Since there is no curative treatment for persistent hypoparathyroidism, parathyroid tissue engineering is of great importance both in scientific research and therapeutically, and parathyroid tissue conjugate produced with 3D printing support is a potential candidate for the treatment of hypoparathyroidism.
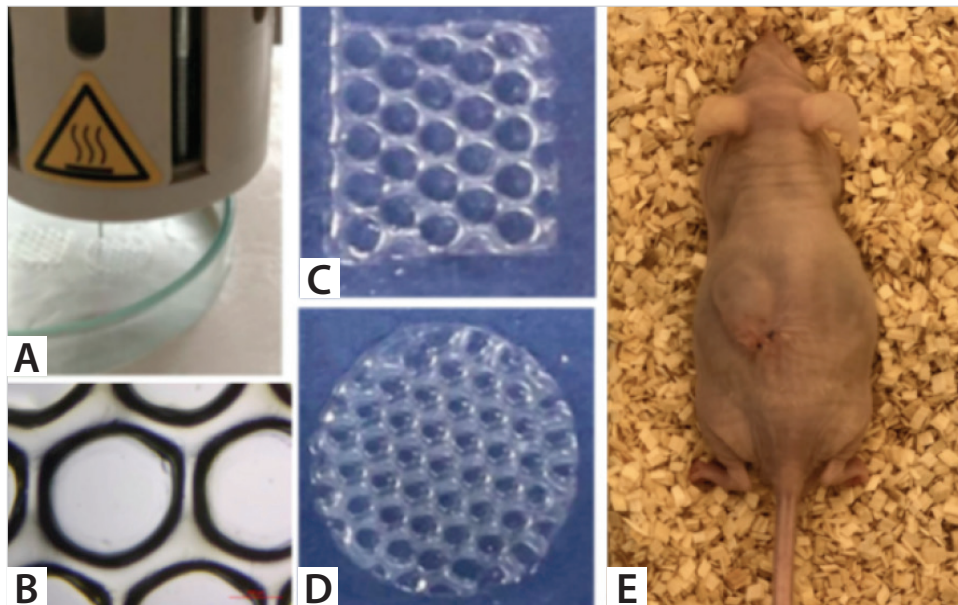
Keywords: Parathyroid, xenograft, 3D printing

Figure 1. A. 3D printing stage of hydrogel scaffolds, **B.** Microscopic view x40 of scaffold pores, **C-D.** 3D printed product with honeycomb design in square and cylindrical architecture, **E.** Atymic nude mouse xenagraft model with parathyroid conjugate implanted in the dorsal flank region.
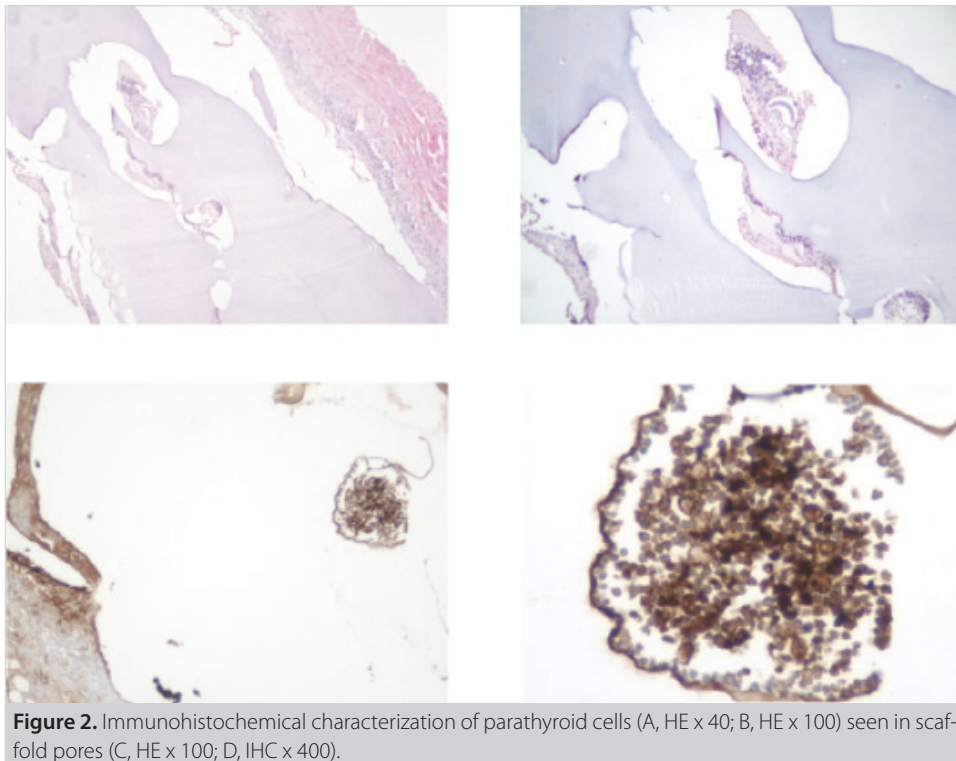

Figure 2. Immunohistochemical characterization of parathyroid cells (A, HE x 40; B, HE x 100) seen in scaffold pores (C, HE x 100; D, IHC x 400).

Association between the number of macrophages infiltrating the tissue and disease stage in gastric cancer patients

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ABSTRACT

Objective: Myeloid cell populations are known to increase in inflammatory diseases such as cancer. Among these increased myeloid cell subtypes, macrophages are immune cells that take an active role in innate and acquired immunity. In this study, the amount of CD206+ macrophages in peripheral blood, non-tumor normal tissue and tumor tissue of gastric cancer patients will be examined in comparison with disease stage.

Material and Methods: Surface markers such as CD45, CD14, CD206, CD163, HLA-DR, PD-L1, PD-L2, CD80 and CD86 on cells purified from peripheral blood, tumor and non-tumor normal tissues of gastric cancer patients were examined by flow cytometry. Disease stage was correlated with the percentage of macrophages in the tissue. In addition, the location of CD206+ macrophages in sections of tumor and non-tumor normal tissues of gastric cancer patients with different stages were quantified after immunofluorescence staining.

Results: Flow cytometry showed that CD45+CD14+HLA-DR+CD206+ macrophages were found in a high percentage in the tumor tissue of gastric cancer patients in blood, non-tumor healthy tissue and tumor tissue samples obtained from gastric cancer patients. In addition, the percentage of macrophages was significantly correlated with the stage of the disease. It is predicted that macrophages may have better T cell stimulation capacity with the percentage of CD80, CD86, HLA-DR they carry on the macrophages and may have immunosuppression capacity in the tumor microenvironment with the PD-L1 and PD-L2 they carry.

Conclusion: At the end of our study, it was found that macrophages carrying CD206 were more in gastric cancer tumor tissue compared to blood, gastric non-tumor normal tissue, and tumor of gastric cancer patients and were associated with disease stage.

Keywords: Gastric cancer, myeloid cell, macrophage

A new technique in challenging stoma management

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ABSTRACT

Objective: Ostomy, a Greek word, means the opening of a hollow organ to the body surface and is named according to the organ being opened. The term stoma is used for the area that is mouth to the body surface. It is important to use appropriate technique to prevent problems such as stoma-induced leakage retraction. However, this may not always be possible and may cause stoma and wound complications. In our study, we planned to present the technique we applied to our patients who underwent urostomy and developed stoma retraction and leakage.

Material and Methods: In our patients with stoma retraction and leakage, a 14 F Foley catheter was adjusted and cut according to the stoma diameter and 0.5-1 cm around it. Then this Foley catheter piece was turned into a ring and placed on the stoma. At the bedside and under local anesthesia, the ring Foley catheter was fixed around the stoma so as to pass through the skin with the retracted intestine in our patient with retracted stoma and only through the skin in our patient with leakage. Then the area between the Foley catheter and the stoma was filled with paste.

Results: In our patients who had problems at the wound site and around the stoma due to stoma leakage and retraction, the leakage problem was resolved after the procedure and the foley catheter was removed after the wound site and stoma complications healed.

Conclusion: Our method can be applied as an auxiliary technique to prevent wound site and stoma complications in difficult stoma management because it is easy to apply and effective.

Keywords: Ostomy, stoma, complications

Figure 1. Foley catheter application. The ring Foley catheter designed to protrude around the stoma was fixed by suturing to the skin.
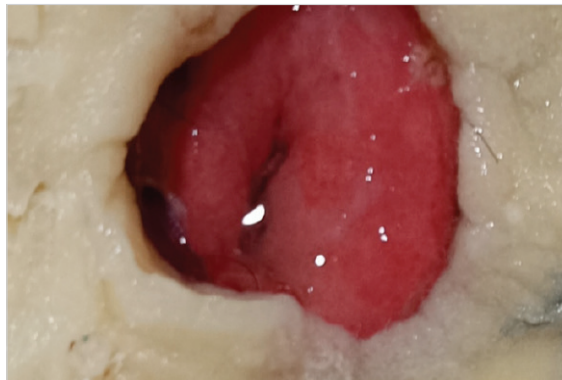

Figure 2. After the paste is applied. After fixing the Foley catheter, adhering the ileostomy adapter by applying paste between the stoma and Foley.

S-4749

Analysis of factors playing a role in the treatment of anal fissure with an artificial intelligence model

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ABSTRACT

Objective: In the treatment of anal fissure, analyzing patients' demographic and clinical characteristics as well as their compliance with lifestyle changes including medical treatment, diet and toilet habits with artificial intelligence may be useful in creating an optimal treatment plan.

Material and Methods: All clinical and demographic characteristics of the patients that were thought to potentially affect the treatment of anal fissure were collected retrospectively. The most significant features were determined by least absolute shrinkage and selection operator (LASSO) regression method. These most effective features were modeled on the sample with XGBoost technique, a machine learning method, with half of the sample as validation and the other half as test set. The effect sizes and direction of the effect were then visualized using SHAP values. R version 4.2.3 was used for data analysis.

Results: Our study included 29 patients, 45% of whom were women, median age 48 years (MYA) (interquartile range 33-59), median duration of complaint 7.0 months (MYA 2.9-30) and median follow-up 2.5 months (MYA 1.1-6.5). The artificial intelligence model predicted malignancy, radiotherapy history, ASA score, anemia, fatigue, indigestion, diarrhea, constipation, anal discharge, tenesmus, rectal bleeding, itching, history of inflammatory bowel

disease, history of colorectal and anal surgery, smoking, gender, location of the fissure, number of fissures, chronicity of the fissure. The characteristics of diltiazem hcl cream and lidocaine cream, use of probiotics, addition of phycilium to the diet, avoidance of pickled foods, warm water bath, toilet training recommendations, water-soluble fiber supplementation, liquid nutrition information were analyzed to predict complete response to treatment and an optimal model was created. The success of our model was 0.759 when measured as area under the curve (AUC). To identify the variables of interest and calculate individual coefficients, we applied the least absolute shrinkage and selection operator (LASSO) variable selection algorithm using the optimal parameter α. This algorithm helped to select the most significant variable effects. The selected variables were then incorporated into the XGBoost machine learning model with hyperparameter tuning using the validation set. Finally, the optimized model was used to make predictions on the test set and its performance was evaluated using the area under the receiver operating characteristic curve (AUC-ROC). The data consisted of randomly partitioned validation and test sets, and all patients were used in model building. The effect of factors was also analyzed using Shapley values. According to the model, the factors that increased treatment success were, in order of effect, absence of multiple fissures, compliance with effective toilet training recommendations, absence of anal itching, and fissure being on the background of previous anal operation (mean SHAP values; 0.07/0.06/0.05/0.01)

Conclusion: This study focused on the factors that affect the quality of treatment by analyzing the factors that play a role in the treatment of anal fissure with an artificial intelligence model. The analysis of these factors, such as the absence of multiple fissures, compliance with toilet training recommendations, the absence of anal itching, and the development of the fissure on the basis of previous surgery, emphasizes the importance of individualized approaches in the treatment of anal fissures. The current study may contribute to the development of future treatment protocols and more effective management of anal fissure patients. This study presents the analysis of various factors and may contribute to the optimization of treatment strategies and the development of more effective and personalized approaches for patients.

Keywords: Artificial intelligence, anal fissure, proctology, constipation

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External aspect of abdominopelvic surgery, drains and enterostomies: A retrospective analysis of 501 cases

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ABSTRACT

Objective: The aim of this study was to obtain quantitative data on the number and distribution of drains, enterostomies, stoma types and related complications used in abdominopelvic surgeries according to the urgency of the case.

Material and Methods: Demographic characteristics, use of drains, presence of enterostomies, and development of drain and stoma complications in abdominopelvic surgeries were recorded by retrospective review of two-year data from operative and clinical observation notes. The number of drains was recorded, and complication development was analyzed separately according to the type of enterostomies. The findings were presented comparatively according to the urgency of surgery. IBM SPSS Statistics 22 (IBM SPSS, Türkiye) was used for analysis. Data were evaluated by descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, maximum). Qualitative data were compared using Pearson Chi-square and Fisher's exact test. Quantitative variables with normal distribution were compared with student-t test. Significance p< 0.05 was accepted.

Results: Of the total 501 patients, 51.29% (n= 257) were female, 48.71% (n= 244) were male, and the mean age was 51.78 ± 13.68 years. Of the surgeries, 40.52% (n= 203) were urgent and 59.48% (n= 298) were elective. Age and gender distribution was similar according to urgency status (p> 0.05). Drains were used in 87.02% (n= 436) of the cases. The total number of drains was 584 and complications were recorded in 22.08% (n= 129). The distribution of the number of drains and complications was similar according to the urgency of the operations (p> 0.05). Enterostomy was performed in 16.16% (n= 81) of the cases; complications were found in 70.38% (n= 57) of these cases. Of the enterostomies, 35.8% (n= 29) were loop ileostomies and this was the most common type of enterostomy (p< 0.05). The second most common enterostomy types were ileocolostomy and end colostomy in emergency operations and end colostomy in elective operations, and the rate of ileocolostomy was higher in emergency operations (p< 0.05). When the distribution of complications according to the urgency status of the operations and the type of enterostomy was examined, the rate of no complications in loop ileostomies, double-barreled ileostomies, ileocolostomies, and end colostomies and the rate of complications in loop colostomy and double-barreled colostomy were higher, and there was no significant difference between both periods (p> 0.05).

Conclusion: When the use of drains and the presence of enterostomies in abdominopelvic surgeries and the development of complications are analyzed, it is seen that the urgency of surgery and the type of enterostomy applied do not change the complication rates, but the fact that the numbers are considerable reminds us that drains and stomas should be considered in terms of complications, which can be called the inner side of surgery, as well as the outer side that affects patient care and patient comfort in surgical wards.

Keywords: Drain, complications, stoma

Table 1. Presence of drain and enterostomy and complications according to demographic characteristics and urgency of operations					
		Total (n= 501)	**Emergency Surgeries (n= 203)**	**Elective Surgeries (n= 298)**	
		n (%)	n (%)	n (%)	
Sex	Female	257 (51.29)	98 (48.27)	159 (53.35)	[a]0.274
	Male	244 (48.71)	105 (51.73)	139 (46.65)	
Age	Min-Max (Median)	18-90 (53)	18-90 (52)	19-90 (53)	[‡]0.081
	Mean ± SD	51.78 ± 13.68	49.9 ± 16.05	53.1 ± 12.07	
Drain Presence					
No drain		65 (12.98)	30 (14.78)	35 (11.75)	[a]0.366
There's a drain		436 (87.02)	173 (85.22)	263 (88.25)	[a]0.054
Number of drains**		584	245	339	
Number of drains without complications		455 (77.92)	180 (73.47)	244 (71.98)	[a]0.716
Number of drains with complications		129 (22.08)	65 (26.53)	95 (28.02)	[a]2.314
Enterostomy Presence					
No stoma		420 (83.84)	168 (82.76)	252 (84.57)	[a]0.021
Stoma present		81 (16.16)	35 (17.24)	46 (15.43)	[a]0.105
Stoma complication					
No complications		24 (29.62)	11 (31.42)	13 (28.26)	[a]0.171
Complications		57 (70.38)	24 (68.58)	33 (71.74)	[a]0.072
Stoma Type - Complication Development					
Loop ileostomy		29 (35.8)	9 (25.71)	20 (43.47)	[a]4.486*
No complication		20 (68.97)	7 (77.78)	13 (65)	[b]0.674
Complication		9 (31.03)	2 (22.22)	7 (35)	
Double barrel ileostomy		11 (13.58)	5 (14.28)	6 (13.04)	[a]0.057
No complication		10 (90.91)	5 (100)	5 (83.33)	[b]1
Complication		1 (9.09)	0 (0)	1 (16.67)	
Ileocolostomy		12 (14.82)	8 (22.85)	4 (8.69)	[a]6.885*
No complication		6 (50)	4 (50)	2 (50)	[b]1
Complication		6 (50)	4 (50)	2 (50)	
Tip ileostomy		5 (6.17)	2 (5.72)	3 (6.54)	[a]0.054
No complication		4 (80)	1 (50)	3 (100)	[b]0.4
Complication		1 (20)	1 (50)	0 (0)	
Loop colostomy		4 (4.94)	3 (8.58)	1 (2.18)	[a]4.224*
No complication		2 (50)	1 (33.33)	1 (100)	[b]1
Complication		2 (50)	2 (66.67)	0 (0)	
Double barrel colostomy		1 (1.24)	1 (2.86)	0 (0)	[a]3.356
No complication		0 (0)	0 (0)	0 (0)	[b]1
Complication		1 (100)	1 (100)	0 (0)	
End colostomy		19 (23.45)	7 (20.0)	12 (26.08)	[a]0.802
No complication		15 (78.95)	6 (85.71)	9 (75)	[b]1
Complication		4 (21.05)	1 (14.29)	3 (25)	

S-6529

Approach to irreduced hernia with hybrid hernioscopy and laparoscopy

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ABSTRACT

Objective: Endoscopic procedures have become widely accepted in all surgical applications. Despite the high cost, they are preferred because of their favorable results on wound complications, post-operative pain and early discharge. Hernioscopy is an endoscopic procedure performed through the hernia sac. In our study, we aimed to present a case of ileus due to torsiated intestinal anus detected by hernioscopy during irreduced hernia operation and the management of this case with laparoscopy and hernioscopy-guided hybrid operation.

Material and Methods: The hernia sac was accessed through a classic inguinal incision. After opening the hernia sac, a purse suture was placed around it and a 10 mm trocar was inserted through this incision. Hernioscopy was performed with the help of an endoscope. Since the intra-abdominal pathology was difficult to intervene with hernioscopy, a 10 mm trocar was inserted through the umbilicus and laparoscopy was performed through this area.

Results: A patient with irreduced inguinal hernia was operated under general anesthesia because of a compressed intestinal anus in the hernia sac. The hernia sac was accessed through a classic inguinal incision. When the hernia sac was opened, no intestinal anus was observed and hernioscopy was performed. No ischemia was observed in the intestinal anus during hernioscopy, but one small intestinal anus was adherent to the peritoneum and torsion was observed in this area. Therefore, the torsiated area was intervened with a 10 mm trocar above the umbilicus and a 5 mm trocar from the right midclavicular line.

Conclusion: In irreduced hernia cases, hernioscopy is very useful for the detection of pathologies that may be missed. These pathologies can be intervened with hernioscopy or hybrid laparoscopic surgery.

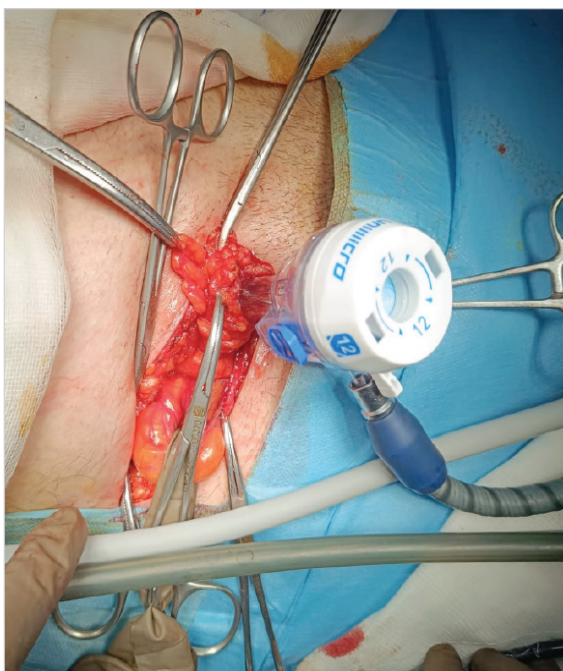**Keywords:** Hernioscopy, laparoscopy, hybrid surgery

Figure 1. Hernioscopy procedure. A 10 mm trocar was inserted into the hernia sac and hernioscopy was performed.

Figure 2. Laparscopy procedure. The torsiated intestinal anus was detected by hernioscopy and laparoscopic intervention was performed.

S-6561

Phenotypic and functional comparison of low-density neutrophils accumulated in the spleen in cancer and acute tissue injury

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ABSTRACT

Objective: In this study, it was aimed to phenotypically and functionally characterize suppressor low-density neutrophils, which are known to increase in chronic inflammation, in the presence of tissue injury causing acute inflammation.

Material and Methods: Spleen samples were collected from 25 patients with splenic injury due to trauma and splenectomy and from 13 gastric and seven pancreatic cancer patients who underwent splenectomy as part of oncologic surgery. Splenocytes were spread on two phases with a density of 1.077 g/mL and 1.119 g/mL. Low density CD66b+HLA-DR-/low neutrophils were purified using MACS and FACS. Peripheral blood mononuclear cells were isolated from healthy donors, labeled with proliferation dye, stimulated with anti-CD3 antibody and co-cultured with low-density neutrophils for 72 hours. Expression of immunomodulatory genes was analyzed by qPCR and expression of immunomodulatory proteins by western blotting. For in vivo experiments, a 4T1 mammary tumor model was established in BALB/c mice. For the trauma model, incisional rupture injury was induced in the spleens of mice similar to that in humans. Peripheral blood and spleen samples were collected from mice. Cells were labeled with anti-mouse -CD45, -CD11b, -Ly6G, -Ly6C antibodies. For T cell suppression experiments, CD11b+Ly6G+ neutrophils were purified and isolated from healthy mice and co-cultured with anti-CD3-stimulated splenocytes.

Results: Immunomodulatory genes that are increased in cancer were also found to be increased in trauma. Spleen tissue of trauma patients had higher levels of low-density CD66b+HLA-DR-/low neutrophils than cancer patients. These cells, which are suppressive in cancer, were found to be non-suppressive in trauma patients. Similarly, CD11b+Ly6G+ neutrophils accumulated in the spleen tissue of traumatized mice were found to be non-suppressive, but these cells were found to be suppressive in mice with tumors.

Conclusion: The percentage of low-density neutrophils accumulated in the spleen increased significantly as the injury severity score increased. Although low-density neutrophils increased in acute inflammation, they were not found to have suppressive properties in contrast to chronic inflammation. This project was supported by Tubitak (Project No: 220S701).

Keywords: Inflammation, neutrophils

S-6684

Use of ICG-SPY in acute intestinal ischemia: Video oral presentation

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ABSTRACT

Objective: Acute intestinal obstruction (AIO) can be roughly defined as obstruction of small or large intestinal passage. AIO accounts for 15% of all emergency acute abdomen cases. It causes ischemia and necrosis of the intestinal anus and leads to surgical resection. Large segmental resections increase morbidity and mortality rates. In this video oral report, it was aimed to present two cases in which we avoided unnecessary intestinal resection by using indocyanine green and ICG-SPY device.

Material and Methods: A 52-year-old male patient was admitted to the emergency department with abdominal pain. Intestinal obstruction localized in the proximal jejunum was detected in the examinations. The patient was operated on, and it was observed that there was a defect in the falciform ligament secondary to previous sternotomy and approximately 10 cm of jejunum anus was herniated. It was observed that the herniated anus was ischemic. After the ischemic segment was freed from the falciform ligament, angiography was performed using indocyanine green and SPY. The operation was terminated without resection as intestinal nutrition was found to be adequate. The patient was discharged with healing.

Results: A 50-year-old male patient presented to the emergency department with sudden onset of abdominal pain. In the anamnesis of the patient, it was learned that he was exposed to repetitive abdominal trauma due to his occupation and had no history of previous operation. Abdominal CT showed an obstructed transitional zone at the level of ileum in the upper quadrant. In the operation, it was seen that approximately 50 cm ileal segment was herniated into the paraduodenal area and was ischemic. The hernia sac was disrupted and the ischemic segment was freed. Angiography was performed with indocyanine green and SPY. Ans perfusion was judged to be adequate and the operation was terminated without resection. The patient was discharged with healing.

Conclusion: ICG-SPY is an infrared fluorescence imaging system that measures tissue perfusion. It allows surgeons performing open procedures such as breast and flap reconstruction, gastrointestinal and cardiothoracic surgery to visualize microvascular blood flow and perfusion in tissue during surgery. There is no data on its use in cases of intestinal ischemia. It was aimed to present that unnecessary intestinal resection can be avoided by using SPY in emergency cases of intestinal ischemia.

Keywords: Intestinal ischemia, ICG-SPY, indocyanine green

S-6894

Use of incisional negative pressure wound therapy in breast cancer patients at high risk for wound complications

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ABSTRACT

Objective: The main complications seen in patients undergoing modified radical mastectomy (MRM) for breast cancer are seroma, surgical site infection, hematoma, wound dehiscence, flap necrosis and nerve damage. The most feared effect of these complications is delayed adjuvant therapy. Incisional negative pressure wound therapy (iNPWT) reduces wound dehiscence by reducing edema and tension, especially at the incision line. This study aimed to compare healing times and wound site complications between patients treated with standard wound dressings and breast cancer patients treated with iNPWT.

Material and Methods: Data of 50 patients who underwent MRM and were at high risk for wound complications were evaluated. Two groups were formed as 30 patients who underwent iNPWT and 20 patients who underwent conventional dressing. Patients at high risk for wound complications were determined with a scoring system based on age >65 years, BMI> 30, comorbidities (HT, DM, CRF, RA, etc.), anticoagulant use, steroid use, smoking, large breast volume and neoadjuvant chemotherapy.

Results: Mean age of the patients was 53.58 years (range 30-80). The most common complications were seroma (20 patients) and partial flap ischemia (14 patients). Mean number of iNPWT admissions was 1.30 (range= 1-2) and the mean number of admission days was 4.47 (range= 2-9). Postoperative seroma was observed in eight patients in the iNPWT group and 12 patients in the conventional dressing group (p= 0.0018). Flash ischemia and dehiscence were statistically significantly higher in the conventional dressing group (p= 0.005, p= 0.021) (Table 1,2).

Conclusion: The use of iNPWT was shown to significantly reduce the amount of postoperative drainage, thus contributing to early removal of drains. Furthermore, iNPWT significantly reduced postoperative seroma, flap ischemia and flap detachment compared to conventional dressings.

Keywords: Incisional negative pressure wound therapy, breast cancer, wound complications

Table 1. Distribution of postoperative complications according to groups

Postoperative Complications	No of Patients (%)		p
	iNPWT (+) group 60 (n= 30)	iNPWT (-) group 40 (n= 20)	
Seroma - +	22 8	8 12	**p= 0.018**
Hematoma - +	29 1	19 1	p= 0.768
Flap ischemia - +	26 4	10 10	**p= 0.005**
Flap necrosis - +	29 1	18 2	p= 0.331
Flap separation - +	29 1	15 5	**p= 0.021**
Surgical site infection - +	29 1	17 3	p= 0.316

Table 2. Association between iNPWT and surgical drainage outcomes

	No of Patients (%)		p
	iNPWT (+) group 60 (n= 30)	iNPWT (-) group 40 (n= 20)	
Drainage volume, cc, median	860 (340-2450)	1000 (640-2400)	p= 0.011
Time to drain withdrawal, days, median	6 (4-12)	7.5 (4-13)	p= 0.021

S-6902

Molecular investigation of factors affecting the resolution of obesity and obesity-related metabolic complaints after sleeve gastrectomy in rats

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ABSTRACT

Objective: Obesity causes chronic low-grade inflammation that affects the phenotype of many organs and is implicated in the development of several chronic inflammatory disorders, notably Non-alcoholic fatty liver disease (NAFLD) and NASH. Sleeve gastrectomy is the most important therapeutic procedure for the treatment of obesity, which remains effective in long-term follow-up. The efficacy of this treatment on the complications of obesity, especially NASH, is a matter of debate. Long-noncoding RNAs (LncRNAs) act as key regulators of inflammatory signaling pathways by mediating pre- and post-transcriptional gene regulation. In this thesis project, it was aimed to demonstrate the resolution of NAFLD and NASH, which are complications of obesity, after sleeve gastrectomy, to examine the association of high expression levels of HULC, MALAT1 and NEAT1, which are LncRNAs in signaling

pathways that play a key role in lipogenesis and inflammation processes and whose significance was determined in previous patient-based studies in our clinic, with the development of obesity complications and to examine the expression status of these marker candidates after sleeve gastrectomy surgery.

Material and Methods: Male Wistar rats were fed a choline-meyitonin defective high-fat dietary model for 8 (n= 14) and 12 (n= 7) weeks for NAFLD and NASH, respectively. Body mass index (BMI) higher than 0.65 was accepted as obesity criterion. Blood samples were collected from the rats at the end of the feeding period and at the end of the surgical follow-up period. NAFLD and NASH were characterized by hematoxylin-eosin (HE) staining of biopsy samples before surgery (laparotomy and sleeve gastrectomy). LncRNA MALAT1, NEAT1 and HULC expression profiles were analyzed by RNA isolation from blood and RT-PCR.

Results: There was no significant weight loss between pre- and postoperative period in the laparotomy group (p> 0.05), whereas significant weight loss was observed in the sleeve gastrectomy group (p< 0.05). MALAT1, NEAT1 and HULC showed high expression in NAFLD and NASH groups compared to healthy controls (p< 0.005). There was no significant difference in the preop and postop expression of the three LncRNAs in the laparotomy group, whereas HULC and NEAT1 showed a significant decrease especially in the NASH group undergoing sleeve gastrectomy (p< 0.0001).

Conclusion: Our results suggest that analyzing the serum expression levels of high NEAT1 and HULC are candidate biomarkers that can be used in the diagnosis and follow-up of obesity-related NAFLD and NASH.

Keywords: LncRNA, NASH, obesity

Figure 1. Method.
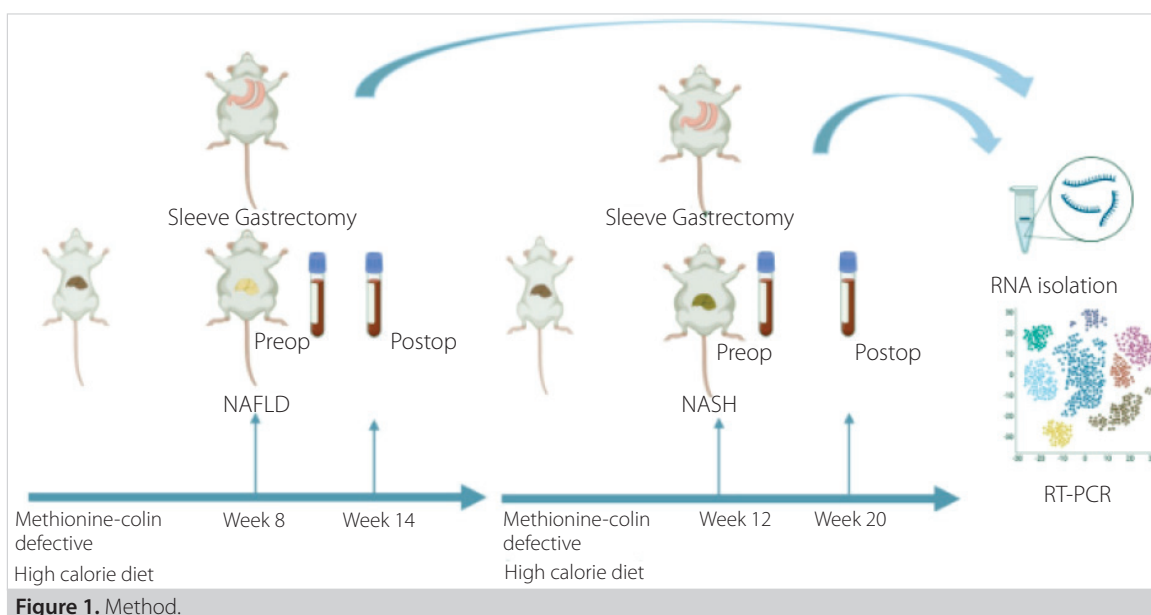
Can endocan act as a molecular "hepatostat" in liver regeneration?

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ABSTRACT

Objective: The liver is specialized for the restoration of its anatomical volume and mass after toxic injury or surgical resection. The liver responds to these changes by tissue regeneration. The optimal mass of the liver after partial hepatectomy or transplantation depends on a number of parameters such as liver/body mass ratio and angiogenesis. After partial hepatectomy, hepatocyte regeneration and then angiogenesis occur. The liver reaches its

optimal functional volume and mass between postoperative days seven and 10 in rats. Regeneration stops when the liver reaches its optimal functional size. In this way, liver regeneration does not cause pathologic angiogenesis or uncontrolled growth. Regeneration ends when the appropriate mass and functional volume are reached. The liver undergoes hyperplasia or hypertrophy to maintain its mass. The liver has three mechanisms to maintain its mass. These are proliferation of existing differentiated cells, differentiation and proliferation of stem cells, and proliferation of periportal hepatocytes. If hepatocyte proliferation cannot compensate for cell loss, new hepatocytes will be produced from differentiating stem cells. If this mechanism is insufficient or inhibited, hypertrophy of periportal hepatocytes will occur. One of the important endogenous factors involved in tissue homeostasis is endostatin. Endostatin is an endogenous antiangiogenic molecule produced by hepatocytes. Systemic administration of endostatin inhibits angiogenesis and tumor growth and inhibits the growth of microscopic metastases. Endostatin levels have been shown to increase with increasing resection percentages in normal and cirrhotic liver. This revealed a significant correlation between serum endostatin level and regeneration capacity after hepatectomy in normal liver. In cirrhotic liver, endostatin level has been shown to be unrelated to liver regeneration. Proteoglycans (PGs) are complex macromolecules found mainly on the cell surface, in the extracellular matrix surrounding most mammalian cell types and also in body fluids. Endocan belongs to the dermatan sulfate proteoglycan family and is released from the vascular endothelium and found free in the bloodstream under healthy conditions. Thanks to their multitude of protein binding patterns (e.g. growth factors, chemokines, enzymes and other extracellular matrix proteins), they have been shown to play an important role in the regulation of normal cellular processes such as proliferation, remodeling, migration or angiogenesis. There are studies showing that endocan regulation is disrupted in disease states and in the cancer process. Increasing evidence suggests that endocan is an important cofactor in various cellular behaviors. It has been shown that endocan, a circulating proteoglycan, is concentrated in tumor sites and inflamed areas, and that soluble proteoglycans are critical regulators of chemokines and growth factors that influence inflammatory events and tumor behavior. Furthermore, proteoglycans have been found to be present at the wound site and regulate the activities of local growth factors. There is evidence for the effects of angiogenic growth factors on gene regulation of endocan. Furthermore, the direct interaction of these angiogenic growth factors and endocan leads to the regulation of the activation of these angiogenic growth factors. The expression of these angiogenic growth factors has been shown to be simultaneous with the expression of endocan. In the study conducted by our group in 2010, the relationship of endostatin with hepatic regeneration and angiogenesis after 70% hepatectomy in rats was examined. In this planned study, it was aimed to reveal the relationship of endocan with other regeneration and angiogenesis markers in liver regeneration after partial hepatectomy.

Keywords: Endocan, liver regeneration, hepatectomy

The effect of microorganisms growing in the wound on the length of hospitalization in Fournier gangrene

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ABSTRACT

Objective: Fournier's gangrene is a microbial pathology characterized by necrotizing fasciitis involving the perianal and genital area. Fournier's gangrene most commonly originates from colorectal pathologies (30-50%), followed by urogenital pathologies (20-40%) and skin pathologies (20%). Despite all aggressive treatments, mortality can be as high as 63%. The length of hospitalization is long, causing loss of labor force and increasing hospital costs. In this study, we aimed to predict the length of hospitalization with the microorganisms grown in culture.

Material and Methods: Patients treated for Fournier's gangrene in Ankara City Hospital between February 2019 and February 2022 were included in our study. In total, 31 of 73 patients were eligible for the study. Data were analyzed with mean values and Student's t-test in SPSS 22 program.

Results: Out of the 73 patients screened, 31 patients were found to grow agents other than skin flora by proper deep tissue culture. Twenty-seven of the patients were males and six were females. Diabetes mellitus was found to accompany 16 of the patients. Mean age of the patients was 59.87 years. The most frequently isolated agent was *Escherichia coli* (25%). It was observed that diabetes mellitus accompanied all patients with fungal and *Acinetobacter* isolates. Mean length of hospitalization was 26.4 days. Mean length of hospitalization was the highest with 48 days in cases with *Corynebacterium striatum* growth in deep tissue culture and the lowest with seven days in cases with *Proteus vulgaris* growth. These values were statistically significant.

Conclusion: One of the most important problems in Fournier's gangrene is prolonged hospitalization and increased cost and labor loss. These losses can be minimized if the length of hospitalization can be predicted in advance. In our study, the length of hospitalization was found to be the highest in cases with *C. striatum* growth and lower in cases with *P. vulgaris* growth. Although *P. vulgaris* is mostly transmitted from the urinary system, we think that the reason for the more benign course of uro-genital fournieres is the lower virulence of this colonization.

Keywords: Fournier gangrene, tissue culture

S-7743

Does minimally invasive hernia surgery cause less trauma?

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ABSTRACT

Objective: Although there are reports to the contrary, the advantages of minimally invasive surgery such as early return to work, less pain and early discharge suggest that minimally invasive surgery causes less trauma and inflammation. In this prospective and randomized study, it was aimed to objectively demonstrate that minimally invasive surgery causes less trauma. We evaluated the systemic inflammatory response in open (Lichtenstein repair) and total extraperitoneal repair (TEP) inguinal hernia repairs. The systemic inflammatory response is thought to be proportional to the severity of trauma and determines the postoperative recovery of patients. In endoscopic procedures, the systemic inflammatory response can often be reduced by using minimally invasive techniques. It can be argued that TEP repair has the advantage of providing higher postoperative patient comfort and less pain than Lichtenstein repair. However, this can be proven with a more objective method of demonstrating pathophysiologic and/or biochemical mechanisms.

Material and Methods: The aim of this prospective study was to evaluate preoperative and postoperative 24 h blood neutrophil/lymphocyte count, CRP sedimentation, procalsitonin, IL-6 values and postoperative day three superficial ultrasound results of the inguinal region in patients who underwent open (33 patients) and closed (35 patients) inguinal hernia repair.

Results: Statistical analysis of the data revealed that postoperative neutrophil count was significantly lower in patients who underwent TEP repair compared to patients who underwent Lichtenstein repair. No significant difference was observed in sedimentation, CRP, procalcitonin and IL-6 values. As a result of superficial ultrasound performed on postoperative day three, the presence of seroma was statistically significantly less in patients with TEP repair than in patients with open repair. No significant difference was observed in the evaluation of seroma size in patients with seroma.

Conclusion: A systemic inflammatory response was observed in patients who underwent Lichtenstein repair and TEP repair. Although the inflammatory response was lower in patients who underwent TEP repair, there was no significant difference in blood tests except postoperative neutrophil count. The significantly lower presence of seroma in patients who underwent TEP repair may be associated with less trauma and less systemic inflammatory response despite more dissection.

Keywords: Inguinal hernia, inflammatory response

Table 1. Comparison of statistical analyses of the study groups			
	Open (Lichtenstein) n= 33 (48.52)	Closed (TEP) n= 35 (%51.47)	p (95% confidence interval)
Sex (Male)	32 (97.5%)	31 (88.6%)	0.357
Age	54.00 ± 12.64	56.54 ± 11.79	0.394
Preoperative neutrophil count	4.16 ± 1.05	3.80 ± 1.42	0.239
Preoperative lymphocyte count	2.00 (1.10-3.10)	1.80 (0.90-4.00)	0.563
Preoperative sedimentation	4.00 (2.00-22.00)	4.00 (2.00-25.00)	0.077
Preoperative CRP	1.20 (0.20-19.90)	1.20 (0.30-35.10)	0.432
Preoperative procalcitonin	0.04 (0.02-0.10)	0.03 (0.01-0.10)	0.880
Preoperative IL 6	0.61 (0.280-2.43)	0.74 (0.041-2.96)	0.148
Preoperative neutrophil/lymphocyte ratio	2.00 (0.84-4.15)	1.94 (0.50-4.93)	0.602
Postoperative neutrophil count	7.10 (3.50-12.40)	5.60 (3.20-15.80)	0.004
Postoperative lymphocyte count	1.78 ± 0.55	1.56 ± 0.47	0.093
Postoperative sedimentation	8.00 (2.00-23.00)	7.00 (2.00-29.00)	0.945
Postoperative CRP	20.00 (1.20-472.00)	20.20 (4.00-139.00)	0.985
Postoperative procalcitonin	0.05 (0.02-0.10)	0.05 (0.02-0.24)	0.790
Postoperative IL 6	0.67 (0.04-2.44)	0.68 (0.38-2.63)	0.314
Postoperative neutrophil/lymphocyte ratio	4.00 (1.52-8.86)	3.50 (1.46-14.36)	0.401
Seroma (present)	19 (57.6%)	6 (%17.1)	0.001
Seroma size	8.00 (4-25)	7.00 (3-22)	0.587
*mean ± standard deviation **median (minimum-maximum).			

S-7973

Comparison of tumor infiltrating lymphocyte and positron emission tomography/computed tomography values in breast cancer molecular subtypes

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ABSTRACT

Objective: Breast cancer is the most common type of cancer in women all over the world and in our country and is the second most common cause of cancer-related death after lung cancer. According to the 2018 research of International Agency on Cancer for Research (IARC) affiliated to the World Health Organization (WHO), the number of newly diagnosed breast cancer patients worldwide is 2.000.088 and the difference with lung cancer, the most common cancer, is only 5.000. In recent years, early diagnosis opportunities have improved due to the widespread use of screening methods with developing technology, and progress has been made in reducing mortality rates with newly developed chemotherapy agents and protocols. In a study published in 1994, the incidence of breast cancer in Türkiye was found to be 24/100.000, whereas a 2.5-fold increase was observed after a 25-year period. The reasons for this increase can be listed as changes in lifestyle (obesity, sedentary life, nulliparity, late childbirth (>35 years), short lactation period, early menarche, late menopause, long-term oral contraceptives and hormonotherapy, etc.), aging of the population, increased awareness, development of screening programs, and population growth. 18F-FDG PET/CT is increasingly being used in the clinical approach for staging, treatment response evaluation and re-staging in patients diagnosed with cancer. The 18F-FDG uptake intensity of the tumoral lesion provides important information about prognosis. The relative change in 18F-FDG uptake intensity after treatment has been shown to be a strong criterion for the evaluation of treatment response. Mechanisms such as GLUT I-III expression on the tumoral cell surface, hexokinase activity, tumor

vascularization, necrosis rate, lymphocyte infiltration, tumor cell density and mitotic activity index have been reported to change the 18F-FDG uptake rate. Studies have also shown that the disease-free survival time is inversely proportional to the SUVmax value, which expresses the 18F-FDG uptake intensity of the tumor, and as the value increases, the disease-free survival time shortens. Despite the advances in breast cancer studies and increased opportunities for early diagnosis, some points in breast cancer treatment design and prognosis prediction are still unclear. This study was designed and conducted to investigate the relationship between 18F-FDG PET/CT, a metastasis screening and staging method that is increasingly used in clinical approach, and tumor-infiltrating lymphocytes, which have become increasingly important in cancer studies and have opened new horizons since their discovery, especially in triple negative and HER2 positive subtypes of breast cancer defined as immunological cancer.

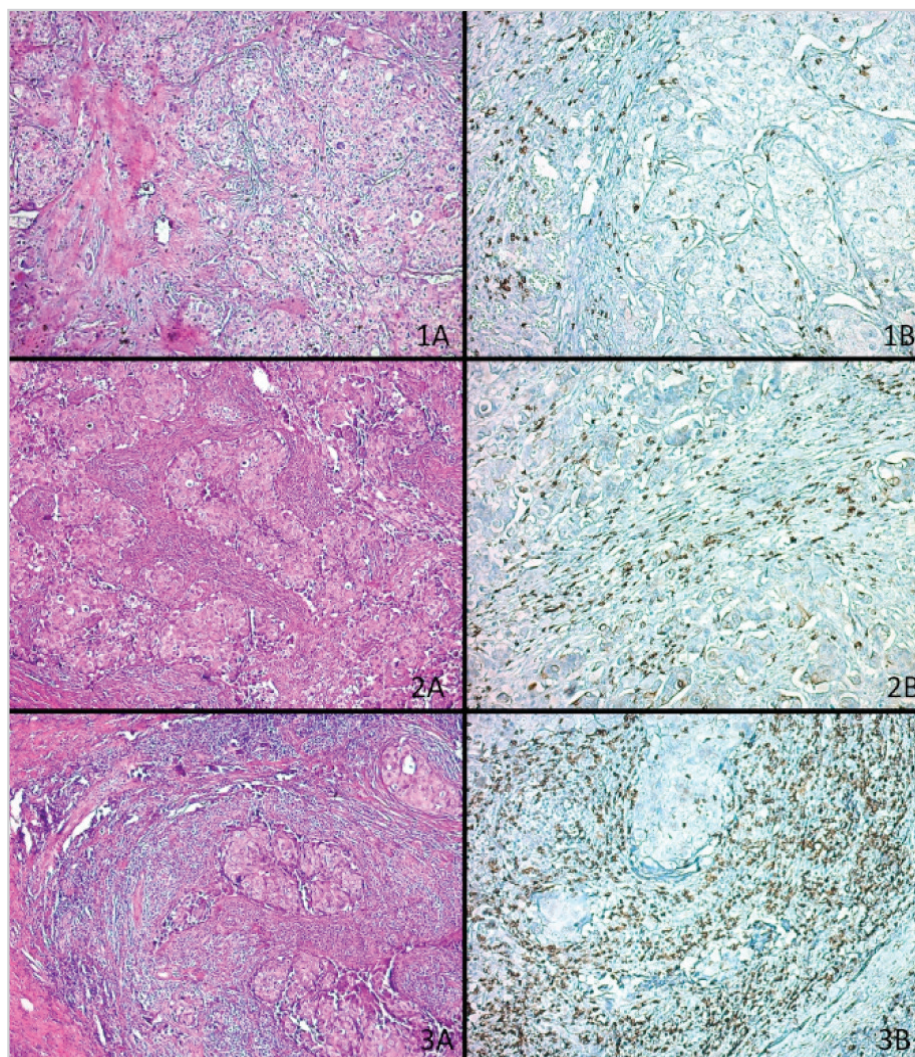**Keywords:** Breast cancer, tumor-infiltrating lymphocytes, PET/CT

Figure 1. TILS microscopic images. Classification of tumor-infiltrating lymphocytes according to the International TIL working group criteria. (1A-1B) Low-grade TILs: Few lymphocytes in the stromal tissue around tumor islands. (2A-2B) Intermediate grade TILs. (3A-3B) High grade TILs: Dense lymphocytes in the stromal tissue around tumor islands. Images on the left (A's) are standard hematoxylin eosin staining at X50 magnification, images on the right (B's) are CD8+ lymphocytes grouped at X100 magnification.

Table 1. Size, mass SUV, TILS score correlation

Spearman's rho			Size	Mass Suv.	Aksilla Suv	TILS
	Size	Correlation	1	0.263*	0.55	0.007
		p	-	0.018	0.625	0.948
	Mass Suv.	Correlation	0.263*	1	0.291*	0.141
		p	0.018	-	0.009	0.214
	TILS	Correlation	0.007	0.141	-0.027	1
		p	0.948	0.214	0.814	-

p< 0.05.
There is a statistically significant positive correlation between size and mass SUV values (p= 0.018 <0.05). An increase of 1 unit in tumor size leads to an increase of 0.263 units in mass SUV value. No significant correlation was found between TILS values and size, mass SUV.

Table 2. Correlation of age, mass size, grad, menopause and TILS rates

Spearman's rho			Age	Size	Grade	Menopause Status	TILS
	Age	Correlation	1	0.104	0.106	-0.613	-0.54
		p	-	0.359	0.350	0.000	0.636
	Size	Correlation	0.104	1	-0.030	0.059	0.007
		p	0.359	-	0.789	0.601	0.948
	Grade	Correlation	0.106	-0.030	1	-0.168	0.291[1]
		p	0.350	0.789	-	0.135	0.009
	Menopause Status	Correlation	-0.613	0.059	-0.168	1	-0.039
		p	0.000	0.601	0.135	-	0.730
	TILS	Correlation	-0.54	0.007	0.291*	-0.039	1
		p	0.636	0.948	0.009	0.730	-

p< 0.05.
The correlation of age, mass size, grade, menopause and TILS rates were analyzed. There was a statistically significant correlation between TILS value and grade.

S-8095

Is ultrasound successful in locating parathyroid adenomas?

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ABSTRACT

Objective: Primary hyperparathyroidism (PHPT) is a disease caused by excessive secretion of parathormone (PTH) by an abnormal parathyroid gland, usually arising from a single adenoma, which can be localized by imaging modalities. Preoperative scintigraphy and ultrasound (USG) are frequently used to localize the parathyroid adenoma. This study was planned to evaluate the diagnostic accuracy of commonly used imaging modalities in PHPT patients.

Material and Methods:TIn our retrospective study, 255 patients (53.9 ± 14.7 years; 74% female) who underwent single gland parathyroidectomy for primary hyperparathyroidism between March 2012 and January 2022 were selected. The sample group had a successful operation without

complications. PTH and serum calcium levels were measured at the 2nd postoperative hour. Sensitivity, specificity, positive predictive value, and negative predictive value were calculated for imaging tests.

Results: Of these 255 patients, 207 patients were localized by preoperative USG with a rate of 80.6% and 163 patients were localized by scintigraphy with a rate of 75.4%. In patients in whom scintigraphy and USG were performed together, this rate was 100% (43 out of 43 cases). In all 43 patients in whom parathyroid adenoma was detected on USG and scintigraphy, the pathology was parathyroid adenoma. The location of parathyroid adenoma was reported in eight of 12 patients who underwent neck CT. Parathyroid adenoma was detected in 19 of 31 patients (12.2%) who underwent neck MRI. Frozen examination was performed intraoperatively in eight patients, and all eight patients were evaluated as parathyroid adenoma. There was a significant decrease in PTH and serum calcium levels at the 2nd postoperative hour (p< 0.001). The rate of normocalcemic patients was 90% at the 6th month follow-up. When the pathology reports of the patients were analyzed, it was seen that parathyroid adenoma was excised in 233 patients (91.4%), parathyroid hyperplasia in seven patients (2.74%), parathyroidal cyst in two patients (0.78%), suspicious lesion with unclear differentiation between parathyroid adenoma and carcinoma in one patient (0.38%), nonparathyroidal tissue in six patients (2.35%), and normal parathyroid gland in six patients (2.35%). USG had a sensitivity of 67.5%, specificity of 90%, positive predictive value of 99.4% and negative predictive value of 10.5% for parathyroid adenoma localization, while scintigraphy had a sensitivity of 11%, specificity of 41.7%, positive predictive value of 6.5% and negative predictive value of 41.9%. In addition, the difference between 2012-2018 (Group A) and 2019-2022 (Group B) was that in 2019-2022, all USGs were performed by a single radiologist experienced in the parathyroid field. In group A, the detection rate of parathyroid adenoma by USG was 67.2% and 80.9% by scintigraphy, while in group B, the detection rate of parathyroid adenoma by USG was 98.9% and 62.5% by scintigraphy.

Conclusion: Our success rate after parathyroidectomy was 92.1% in patients who underwent preoperative MIBI scintigraphy and USG. Parathyroidectomy can be safely performed by an experienced surgeon with imaging methods. In addition, ultrasound has high diagnostic accuracy for parathyroid adenoma localization when performed by experienced teams.

Keywords: Parathyroid adenoma, ultrasonography, scintigraphy

S-8470

Artificial intelligence supported analysis of surgical trend changes in Türkiye

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ABSTRACT

Objective: General surgery has shown many changes and developments in a dynamic historical process. Breakthroughs in technology have accelerated these processes and paved the way for many changes. Today, concepts such as artificial intelligence and minimally invasive surgery come to the forefront. This development is progressing in our country in parallel with the process in the world. In this study, we planned to analyze the historical development process of surgery using artificial intelligence robots based on medical literature data in Türkiye.

Material and Methods: To screen the data, articles indexed in the international index of PubMed search engine between 2015 and 2023 were considered. It was planned to analyze with the help of Bard® artificial intelligence supported chatbot. Through the commands given to Bard, trends in surgery were analyzed, data were interpreted, and evaluations were made on the results.

Results: According to the Bard analysis, 2473 laparoscopic-endoscopic, 492 robotic and 712 AI-assisted surgery articles from Türkiye between 2015 and 2003 were screened and included in the study analysis. These articles were accessed through the PubMed database. Bard calculated the statistical data of these articles separately by year. The number of articles increased steadily over the years. Looking at the proportional increases of the articles in their groups according to the years, the laparoscopic-endoscopic surgery group increased between 2.92-10.75%, the robotic surgery group increased between 7.14-20%, and the artificial intelligence assisted surgery group increased between 3.22-11.49%.

Conclusion: Surgical trends in Türkiye have evolved in the last 10 years to a minimally invasive and artificial intelligence-supported process that allows multidisciplinary management with the increasing involvement of technology. The increase in the number of articles over the years shows that Turkish surgeons are regularly developing and updating themselves in the scientific field. While minimally invasive surgery continues to maintain its increasing popularity in recent years, the fact that the highest proportional increase is in robotic surgery among the groups puts it one step ahead of laparoscopic and endoscopic surgery. Surgical studies in the field of artificial intelligence are also accelerating. By conducting these analyzes supported by artificial intelligence, we aimed to raise awareness of trend changes and to look at the surgical trend change from a different perspective.

Keywords: Artificial intelligence in surgery, minimally invasive surgery, surgical trends

Table 1. Article analysis by year

Year	Laparoscopic-Endoscopic Surgery	Robotic Surgery	Artificial Intelligence Assisted Surgery
2023	328	84	128
2022	304	72	116
2021	287	60	104
2020	279	56	99
2019	271	52	94
2018	263	48	91
2017	255	44	88
2016	247	40	85
2015	239	36	82

S-8505

Etiologic reasons for delay in diagnosis and treatment of locally advanced breast cancer: Preliminary results from a nationwide survey

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ABSTRACT

Objective: Breast cancer is the most common type of cancer in women worldwide and detection at an advanced stage is the most important factor in decreased survival. The aim of our survey study was to investigate the patient and regional factors that cause delay in diagnosis and treatment of breast cancer in different geographical regions of our country.

Material and Methods: A questionnaire survey was designed to be administered to women diagnosed with locally advanced breast cancer in all regions of Türkiye between August 2023 and October 2024. The questionnaire consists of two parts filled out by the patient and the physician to examine possible delays in diagnosis and treatment. The questionnaire designed for the data collection part was completed by a trained doctor/nurse during face-to-face interviews. The questions included socio-demographic factors [age, education level, first year of marriage, marital status, occupation, menopausal status, place of residence, health insurance, daily exercise time, body mass index (BMI), smoking, x-ray history, chronic disease, delay time, family history of breast cancer, age at first pregnancy, history of breast benign disease, breast self-examination, knowledge and regularity] and clinical factors (lymph node status, type of first symptom, tumor location, tumor type, date and type of onset of breast cancer symptoms noticed by patients, date of first symptom, date of first medical consultation, and socioeconomic factors at that time). Clinical data were obtained by the physician from the patients' medical records.

Results: The study included 37 centers from seven regions of Türkiye. A total of 55 researchers were involved in the creation of the questionnaire and the conduct of the study. A total of 532 questionnaires were evaluated in the first period. Patients were aged 22-89 years (median 55), 40% had primary school education and 51% performed breast self-examination (BSE). It was observed that 466 patients first applied to the hospital, 62 to the family physician, 327 knew how to perform BSE, 290 patients had the disease detected during screening, 290 patients applied to the doctor within one month after the mass was detected, and 271 patients rarely performed BSE. Regarding the factors causing delay in diagnosis, 17% of the patients reported that lack of knowledge and 16% reported that fear of death delayed consultation. The time to be examined by a specialist was within one month after the finding in 273 patients, between 1-3 months in 110 patients and more than three months in 70 patients, while the time to mammography was within one month in 331 patients, between 1-3 months in 84 patients and more than three months in 17 patients. Other radiologic imaging (ultrasonography-magnetic resonance imaging) was performed in 331 patients and tissue biopsy in 174 patients within one month. The most important factor in the delay of chemotherapy and radiotherapy after surgery was determined as treatment side effects. In the Black Sea region, the most common factors causing delayed diagnosis were not being able to get an appointment and fear of losing the breast, while in the Mediterranean and Eastern Anatolia regions it was fear of death, lack of information and lack of time from daily work, and in Southeastern Anatolia, Marmara, Aegean and Central Anatolia regions it was lack of information, economic reasons, fear of death and fear of losing the breast.

Conclusion: Approximately half of the women diagnosed with locally advanced breast cancer did not know how to perform BSE and 33% performed BSE once a month. Among patient-based factors across geographical regions, ignorance and then fear of death were found to be the most common factors causing delay. We believe that it will be possible to obtain more precise and detailed results on the factors causing delay in the diagnostic and treatment process by increasing the number of questionnaires to be obtained after the completion of the project.

Keywords: Delayed diagnosis, breast cancer, biopsy

Table 1. Results by region

Regions	Most common reason	Most common second reason
Black Sea	Not getting an appointment (33%)	Loss of breast (33%)
Mediterranean	Fear of death (50%)	Ignorance (50%)
East Anatolia	Fear of death (50%)	Housework (50%)
Southeastern Anatolia	Ignorance (33%)	Economy (20%)
Marmara	Ignorance (33%)	Fear of death (25%)
Eagean	Ignorance (40%)	Loss of breast (20%)
Central Anatolia	Ignorance (40%)	Fear of death (33%)

Effect of geraniol in hepatic ischemia reperfusion injury model induced in rats

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ABSTRACT

Objective: Effect of geraniol in a rat model of hepatic ischemia reperfusion injury. This study aimed to investigate the effect of geraniol, an isoterpene group molecule, which is widely found in nature and has been shown to have antioxidant and hepatoprotective properties, on hepatic I/R injury in rats.

Material and Methods: Twenty-eight male Wistar albino rats weighing 350-400 g were used. The rats were divided into four groups as control group, I/R group, 50 mg/kg geraniol + I/R group and 100 mg/kg geraniol + I/R group. Ischemia and reperfusion periods were determined as 15 min and 20 min, respectively. Ischemia was started at the 15th minute of geraniol administration. ALT, AST, lactic acid levels were measured in sera. SOD, CAT and GPx activity levels were measured in liver tissues. Liver tissues were examined histopathologically.

Results: Intraperitoneal administration of 50 mg/kg and 100 mg/kg of geraniol molecule significantly decreased AST, lactic acid and TNF-α levels. Although serum ALT levels were significantly decreased in the 50 mg/kg group, the decrease in the 100 mg/kg group was not significant. SOD and GPx enzyme activities were shown to be significantly increased in the 100 mg/kg group, but no significance was found in the 50 mg/kg group despite the increase in enzyme levels. Again, although CAT enzyme activity was shown to increase in the 50 mg/kg and 100 mg/kg groups, the increase was not found to be significant. Suzuki score was significantly decreased in the 50 mg/kg and 100 mg/kg groups.

Conclusion: In this study, geraniol molecule was shown to reduce hepatic damage biochemically and histopathologically and to increase antioxidant defense enzymes. Thus, it was concluded that geraniol can be used to prevent hepatic I/R injury if supported by large centered and comprehensive studies.

Keywords: Hepatic ischemia reperfusion injury, geraniol, oxidative stress

Investigation of the expression of immune checkpoint and fatigue-related molecules in cytotoxic T cells in the lymph node near the tumor in breast cancer

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ABSTRACT

Objective: In cancer, molecular and functional characterization of T cells in lymph nodes located close to the tumor is important in the treatment approaches to be applied to patients. However, studies with lymph nodes are limited and are mostly performed with peripheral blood samples. The aim of this study was to examine the expression of immune checkpoint and T cell fatigue-related molecules in cytotoxic T cells in lymph nodes close to the tumor of breast cancer patients.

Material and Methods: Lymph nodes and peripheral blood samples were collected from twenty-five breast cancer patients. Multicolor immunophenotyping was used to determine the expression of PD-1, TIM-3, LAG3, CTLA-4, CCR7, CD45RO, CD127, CD25, CXCR5 and ICOS molecules on CD3+CD4-CD56-CD8+ cytotoxic T cells.

Results: A population of cytotoxic T cells with high PD-1 and CXCR5 expression was found in the lymph nodes of breast cancer patients. Co-expression of PD-1, CXCR5, TIM-3 and ICOS indicated a follicular helper T cell (Tfh)-like, exhaustion-related immunophenotype in these cytotoxic T cells. Only a small population with CTLA-4 and LAG3 expression was recorded. PD-1+CXCR5+ cytotoxic T cells were found to largely exhibit a central memory phenotype (CD45RO+CCR7+).

Conclusion: In conclusion, regional lymph nodes of breast cancer patients harbor Tfh-like depleted cytotoxic T lymphocytes with high PD-1 and TIM-3 checkpoint molecule expression. The results were evaluated together with clinical data.

Keywords: T cell fatigue, breast cancer

S-9555

Intraoperative indocyanine green angiography in the evaluation of the level of surgical amputation in patients with arterial ulcers due to thromboangiitis obliterans

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ABSTRACT

Objective: Determining the level of amputation in patients with arterial ulcers diagnosed with thromboangiitis obliterans (TAO) is very important to protect patients from repeated surgeries and to ensure postoperative wound healing. This study aimed to evaluate the effect of intraoperative Indocyanine green angiography (ICGA) on amputation level in patients with TAO.

Material and Methods: The study included a retrospective review of all patient records admitted to the diabetic foot department of the general surgery clinic. The population of the study consisted of all patients with arterial ulcers diagnosed with TAO between November 2019 and January 2022, and the sample consisted of patients who underwent intraoperative ICGA.

Results: Our study included n= 26 patients with lower extremity arterial ulcer and TAO. The mean age of the patients was 62.3 ± 9.9 years and 88.5% were male. Tobacco product use was present in all patients. 38.5% of the patients underwent forefoot amputation and 34.6% underwent single amputation. The rate of patients who underwent peripheral angiography preoperatively was 96.2% and the rate of patients with successful angiography was 80.8%. The mean contraction (inflammation value) in patients who underwent ICGA intraoperatively was 167.3 ± 27.9. Postoperative complications did not develop in 53.8% (14) patients, while 30.8% underwent repeat surgery. The rate of patients with delayed wound healing was 34.6%. The mean postoperative wound healing time was 148.9 ± 109.3 days. The long-term follow-up period without ulcer development in these patients was analyzed as 474.3 ± 209.5 days.

Conclusion: Although recovery times were long in our patients, ICGA can be used as a functional and valuable diagnostic tool in TAO patients to protect patients from recurrent amputations and to keep the surgical amputation margin within a safe range.

Keywords: Indocyanine green angiography, thromboangiitis obliterans

S-9717

The mysterious link between Parkinson's disease and appendectomy appendectomy: The surprising solution to Parkinson's disease?

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ABSTRACT

Objective: Alpha-synuclein (α-syn) proteinopathy in enteric nervous system (ENS) neurons is proposed to play a critical role in the onset and progression of Parkinson's disease. Interestingly, the ENS of the human appendix harbors abundant α-synuclein and appendectomy has been associated with reduced risk and delayed onset of Parkinson's disease. This suggests that the appendix may influence PD pathology. In the light of this information, we investigated the relationship between appendectomy history and Parkinson's patients in our center.

Material and Methods: We retrospectively screened newly diagnosed Parkinson's disease patients in our hospital between 2016 and 2023. We questioned these patients about their age and history of appendectomy. Descriptive statistical methods were used to evaluate the data. Inclusion criteria, all patients with a diagnosis of Parkinson's disease who could be contacted; in addition, patients whose complete data could not be accessed and/or who did not consent to the use of their data in the study were excluded from the study.

Results: In our study, 80 of 185 patients diagnosed with Parkinson's disease were reached. Among this group, 12 patients who had undergone appendectomy were identified. When the mean age of the patient groups was analyzed, the mean age of patients diagnosed with Parkinson's disease who did not undergo appendectomy was 62.36 years. On the other hand, the mean age of the patients who were diagnosed with Parkinson's disease and underwent appendectomy was 65.75 years. The analysis showed that there was no significant correlation between the two groups. However, the study is ongoing and a detailed examination of other patients diagnosed with Parkinson's disease is planned. These findings may form the basis for a more comprehensive evaluation of the relationship between appendectomy and Parkinson's disease.

Conclusion: In the light of these studies, the potential association between Parkinson's disease and appendectomy has not yet reached a definitive conclusion. The links shown by various studies and epidemiologic data suggest that this is an important area of research. However, further studies are needed on the mechanisms underlying this association and how these findings can be translated into clinical practice. Further research on the etiology of Parkinson's disease could be an important step towards developing new strategies for the prevention and treatment of this disease. Furthermore, advances in this area may have general value for the understanding of neurodegenerative diseases.

Keywords: Parkinson's disease, appendectomy, α-synuclein