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KLİNİK ÇALIŞMALAR

Spontaneous Liver Rupture in the Late Postpartum Period

Geç Postportum Dönemde Spontan Karaciğer Rüptürü

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SUMMARY: *Spontaneous rupture of the liver is a rare and catastrophic complication of pregnancy. The liver is frequently enlarged and soft, and will not hold sutures. Ligation of the hepatic artery and packing of the liver are necessary to control the bleeding. However, a better way is to perform percutaneous angiographic embolization of the hepatic artery, preferably selectively. This may cause abscess formation, which can be percutaneously drained. Recurrent abscess formation requires surgical excision of the necrotic area of liver. The presented patient did well using this approach.*

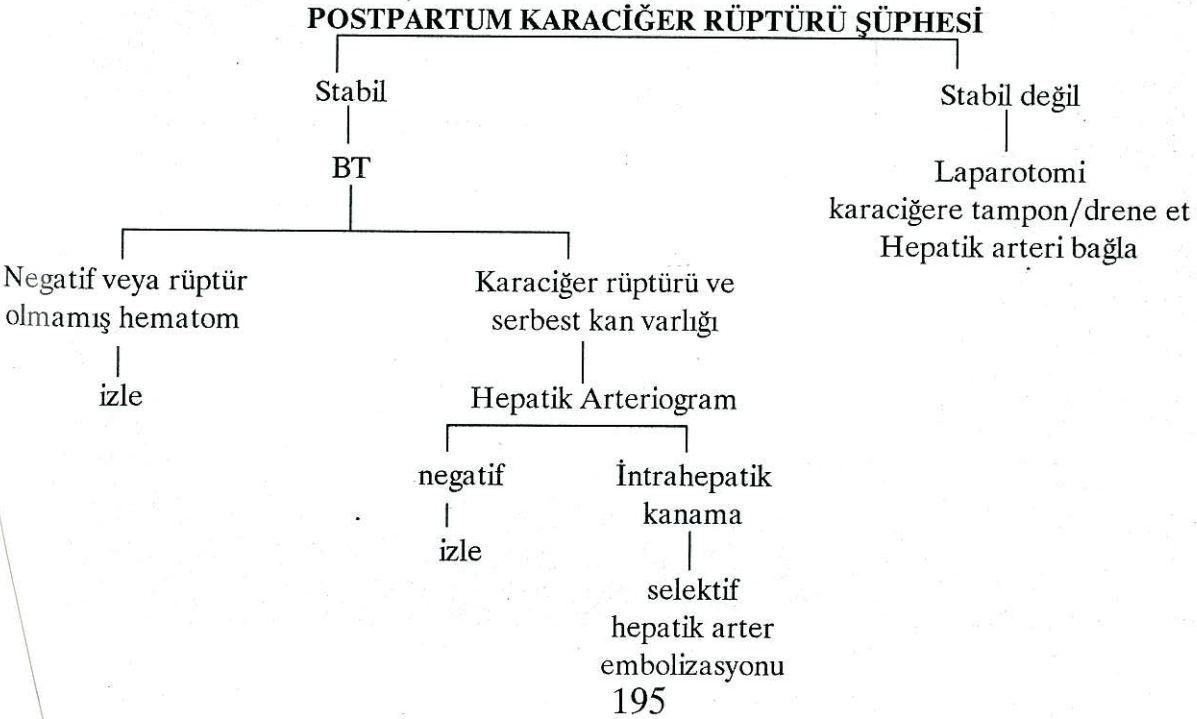
Key Words: Liver rupture, Post partum complications

ÖZET: *Karaciğerin spontan rüptürü gebeliğin nadir bir komplikasyonudur. Karaciğer genellikle büyümüş yumuşak ve kolay dikiş tutmaz, kanamayı kontrol altına almak için hepatik arterin bağlanması ve karaciğeri tampone etmek gerekir. Ancak daha iyi bir yöntem hepatik arterin perkütan yoldan tercihan selektif şekilde embolizasyonudur. Bundan sonra bir abse gelişebilir, bunu da perkütan olarak drene etmek olanaklıdır. Tekrarlayan karaciğer abse oluşumunda, nekrotik karaciğer alanları cerrahi yöntemle eksize edilmelidir.*

Kendi deneyimimize ve literatür taraması sonucunda postpartum karaciğer kanamalarında Şekil 4'deki Algoritmin izlenmesini öneriyoruz.

Anahtar Kelimeler: Karaciğer rüptürü, post partum komplikasyonları

Spontaneous rupture of the liver was first described by Abercrombie in 1844.[1] With no



history of trauma, it is a rare and catastrophic complication of pregnancy. It is a usually associated with toxemia and therefore case reviews have appeared primarily in the obstetric literature. However, in this case, the presentation was postpartum and could present a diagnostic dilemma to the gastroenterologist or surgeon.

Although many patients reach the hospital in time to benefit from definitive therapy, maternal death is likely. Since 1970, whenSeverino et al[2] reported that approximately 70 percent of those patients treated by prompt surgical intervention died, non-surgical techniques have been developed, such as angiography with selective embolization that may significantly lower mortality.

Case Report

Two weeks following an uncomplicated cesarean section delivery of a full term infant, a 33 year old gravida 1, para 1 patient with no history of any prior use of oral contraceptives, acutely developed right upper quadrant pain and a low grade fever. She presented to her community hospital tachycardiac with a systolic blood pressure in the 90's, a temperature of 103°F and localized right upper quadrant pain. Workup included an abdominal ultrasound which showed an echogenic subcapsular hepatic collection thought to be blood, and the patient was transferred to Westchester Medical Center for further treatment.

Her temperature was 100.1°F, blood pressure 90/palp, pulse 124. She was anicteric. Her abdomen was distended and she had moderate right upper quadrant tenderness. Bowel sounds were present. Pelvic examination revealed a normal involuting uterus. Abnormal laboratory tests included a WBC 22K, GGT 192, AP 400. The hematocrit was 31.7 and the PT/PTT were within normal limits. CT Scan showed a heterogenous and multi-septated 8 cm lesion in the right lobe of the liver, consistent with a hematoma (Figure 1).

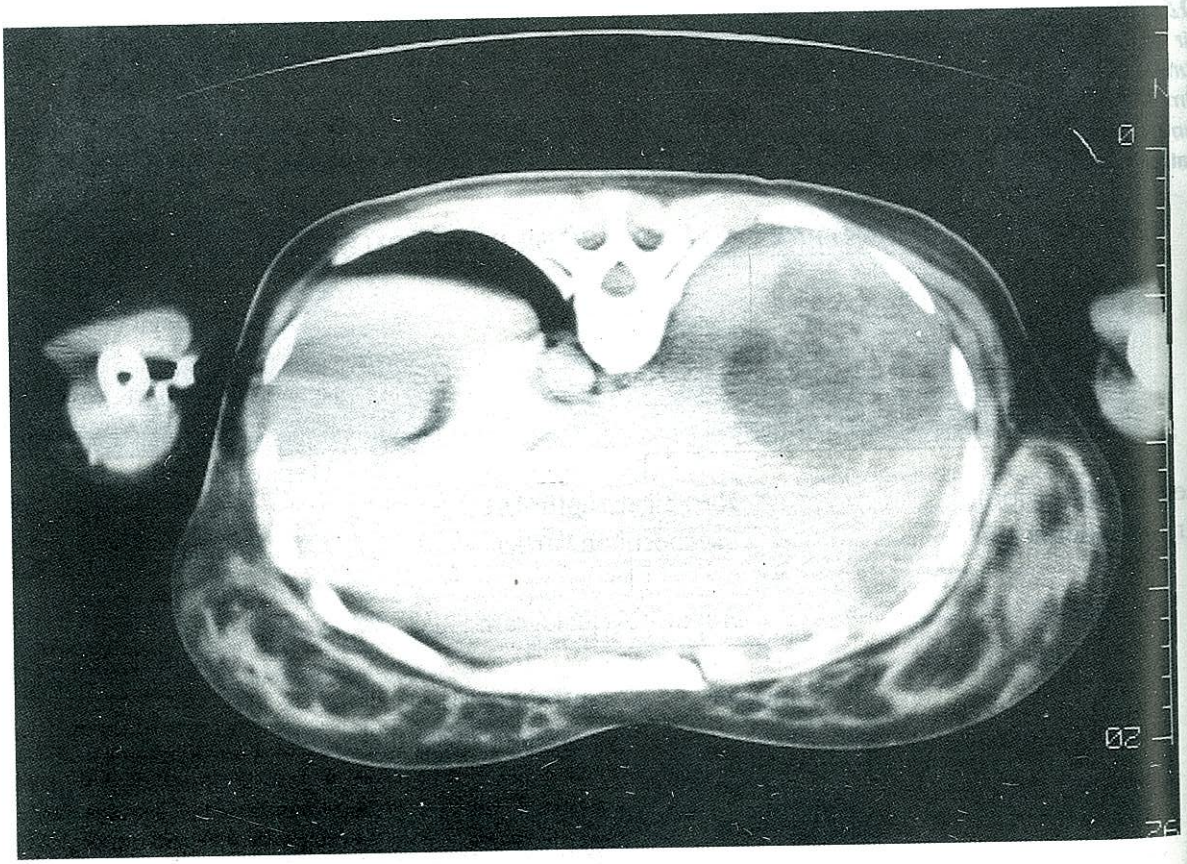


FIGURE 1: *Intrahepatic multi-septated 8 cm hematoma of the right lobe of the liver with evidence of lifting of Glisson's capsule. Postpartum breast enlargement is noted on this scan.*

She was admitted to the surgical care unit for observation and resuscitation. She appeared to stabilize with a BP of 110/70, a pulse of 88 and required only one unit of packed red cells to maintain her hematocrit of 32. Over the following 24 hours, she had intermittent bouts of hypotension which responded to IV fluids. Repeat hematocrit was 30. Follow up CT scan showed the hematoma enlarged to 10 cm with fluid in the rightparacolic gutter (Figure 2).

An hepatic angiogram revealed active bleeding from the posterior branch of the right hepatic artery (Figure 3) which was selectively embolized with Gianturco coils.

Over the next five days the patient remained stable and was discharged to the floor. Her hospital course was complicated by intermittent fevers. An abscess was identified on follow up CT Scan and drained precutaneously. She did well and was discharged one month following her admission. She subsequently required hospitalization three more times for recurrent abscess formation. Percutaneous drainage appeared to be adequate, but when the patient also developed a subphrenic abscess it seemed likely there was a feeding focus remaining within the liver. Therefore, resection of liver segments VII and VIII, which were shrunken and abnormal, was carried out to prevent further abscess recurrence and to rule out the possibility of an underlying adenoma. In addition, she required drainage of the chronic right subphrenic abscess but was home in ten days. Pathology showed only areas of necrosis of uncertain etiology in the liver specimen. She has remained well during her two year follow up.

DISCUSSION

Spontaneous liver rupture is a rare complication of pregnancy with mortality rates reported to be as high as 75%. Various etiologies have been proposed including vascular diseases (particularly toxemia)[3], disseminated intravascular coagulation[3], hypertension[4], hepatic neoplasm[5], viral infections[5], and fatty liver changes.[4] Most commonly the cause remains unknown.

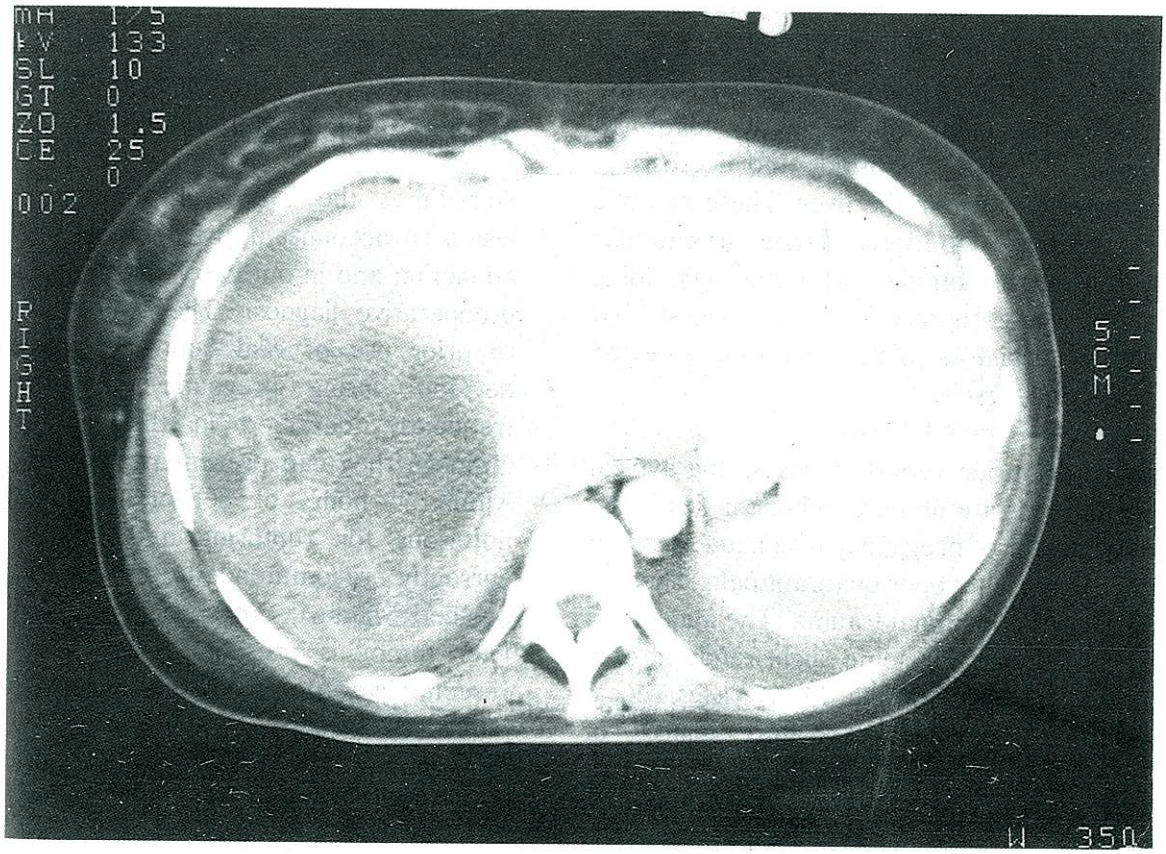


FIGURE 2: *10 vm hematoma in the right lobe of the liver which is being pushed down into the abdominal cavity. Not shown is a large sympathetic right plural effusion.*

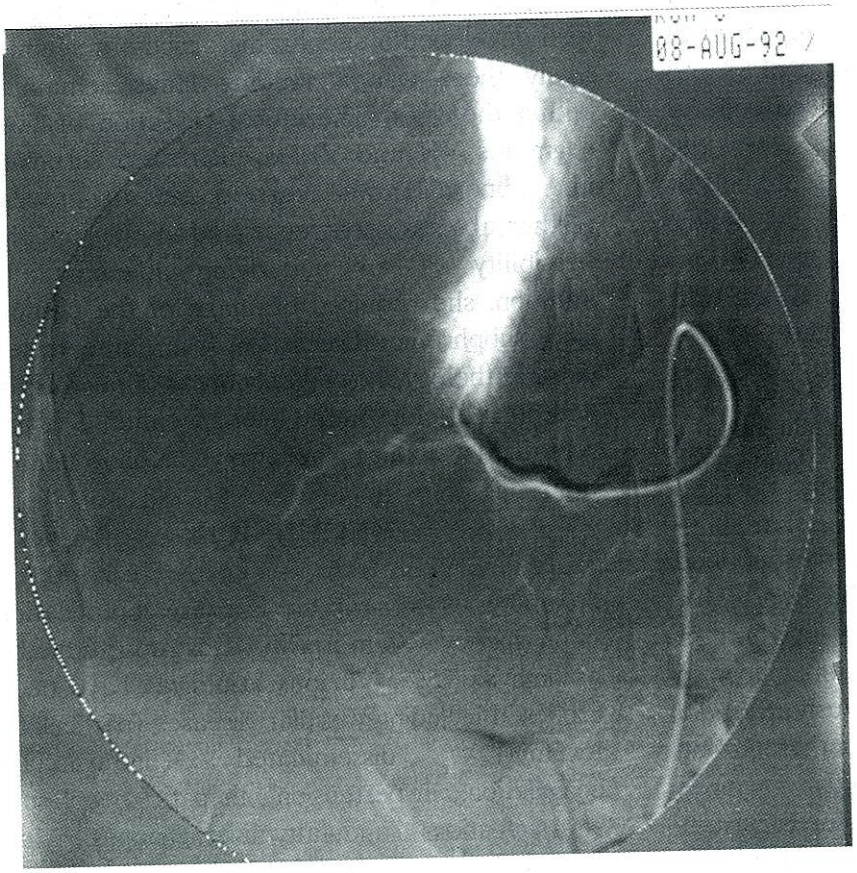


FIGURE 3: *Angiographic demonstration of free flow of blood from the ruptured right posterior branch of the hepatic artery*

Pathophysiologically, in the preeclamptic patient, fibrin deposition appears to be the inciting event that subsequently leads to occlusion of hepatic sinusoids and necrosis of small arterioles within the liver. These necrotic areas coalesce to form large subcapsular hematomas, predominantly in the right lobe, that ultimately rupture.[6,7] Some suggest that trauma so trivial as to be denied, may be the inciting event.[8]

Based upon prior reported cases, the typical presentation is a multipara in her thirties in the third trimester of pregnancy with acute onset of epigastric or right upper quadrant pain. There is no history of abdominal trauma. The abdominal exam usually reveals some slight tenderness in the right upper quadrant.[4] Many cases reveal associated hypertension and signs of preeclampsia[4], but the present case did not. Then the patient typically deteriorates with an increase in pain and sudden shock ensues. A large subcapsular hematoma forms in the right hepatic lobe and secondary rupture of Glisson's capsule causes a massive intra-abdomin hemorrhage.[4] An emergency Ultrasound Sca will confirm the diagnosis.

Sometimes the liver will contain a specif lesion to account for hemorrhage, usually a adenoma, and in our case was the presumptiv preoperative diagnosis. They are usually relate to prior use of oral contraceptives but ca develop during pregnancy and are mo frequently identified in the last trimeste although they can present postpartum, usual within 24 hours of delivery. Adenomas a notorious for rupturing and therefore it currently recommended that pregnancy avoided whenever an unresected, undiagnos liver tumor is present, or when a partia resected liver tumor is known to remain.[9]

Severino et al[2], gave a typical description of operative findings encountered: "At explorati or autopsy an area in the right lobe of the li usually exhibits rupture of a subcapsu hematoma with resultant hemoperitone

The remainder of the liver appears intact although the liver may be enlarged and soft. Characteristically, microscopic evaluation reveals no pathognomonic lesions and the only common findings are areas of hemorrhage and necrosis."

The most common cause of death after spontaneous rupture of the liver in pregnancy is uncontrollable hemorrhage. The soft liver will not hold sutures and can easily be torn apart. The best operative approach to stop bleeding is to ligate either the hepatic artery trunk or its major right branch. Despite aggressive surgical management, however, maternal mortality remains high. In their comprehensive review Bis and Waxman[10] concluded that "no patient survives without surgery." However, Walter and associates[11] in 1976 reported the first case of a successful percutaneous angiographic embolization of the hepatic artery for control of bleeding. This technique has been used both as a primary treatment and after failure of attempted surgical control. With increased use of these procedures over the past decade the technical difficulties have become less of an issue.

Embolization of the hepatic artery is a relatively safe procedure because the liver has a dual blood supply from the portal venous system and hepatic artery; however, a contraindication to embolization would include severe portal hypertension with reversal of portal blood flow. Gianturco coils are permanent but Gelfoam has the advantage that it is resorbed over several weeks, usually allowing partial recanalization of occluded vessels.[9]

Based upon our experience and review of the literature, we recommend the algorithm (Figure 4) for management of postpartum hepatic hemorrhage.

A repeat CT Scan is indicated in the presence of a falling hematocrit to differentiate an intrahepatic hematoma from one with a ruptured capsule and hemoperitoneum. Our case actually did have free blood in the peritoneum but this was controlled by embolization. The potential for further bleeding still exists as does the potential for development of life threatening liver abscess. We had a great deal of trouble controlling abscess formation

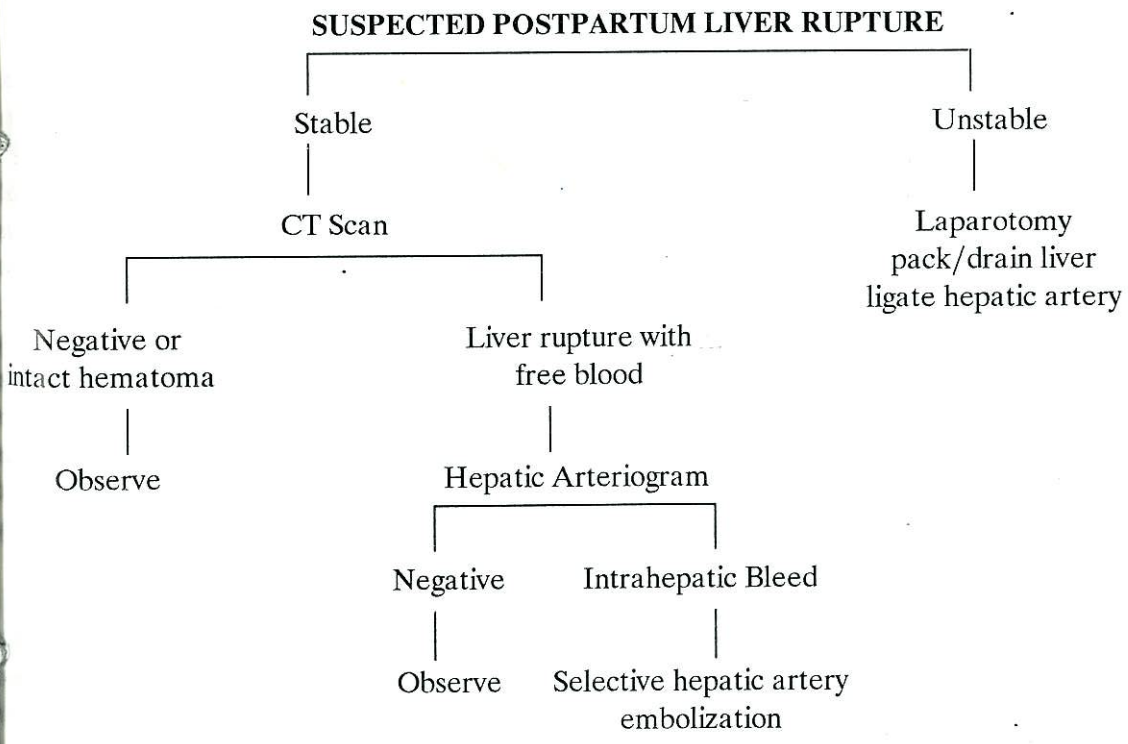


FIGURE 4: *Algorithm for management of postpartum liver hemorrhage.*

and were reluctant to proceed too quickly to resection because associated inflammation increases surgical risk. By the time of resection, there was much fibrosis which simply increased the difficulty. In any event, we had intended to explore this patient with a view to resection because we were afraid that she may have residual adenoma which could lead to a subsequent rupture at a later date.

A step by step approach to the management of the late spontaneous rupture of the liver after pregnancy is presented.

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