Gunshot and Abruptio Placenta

**Abstract**

A twenty-nine year old, multigravida woman was admitted to our clinic due to a gunshot injury. She had 24 weeks of gestation. It was observed by ultrasonography that there were 6 cm hypoechogenic image retroplacentally located and 1 cm hyperechogenic focus near to this image, and there was also a 2 cm actively bleeding incision area in subumbilical region by inspection of abdomen. We decided emergent operation because of the diagnosis of abruptio placenta. During the operation, we observed a piece of bullet between the placenta and myometrium and 50% separation of the placenta. We removed the piece of bullet, repaired the uterine perforation and then performed a caesarean section. We considered that this case is important because a gunshot injury had only caused an abruptio placenta without affecting mother and her fetus seriously.

**Keywords**

Gunshot; Pregnant Woman; Uterus

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Özet

Yirmi dokuz yaşında multigravid bir gebe ateşli silah yaralanması nedeniyle kliniğimize başvurdu. Anamnezde 24 haftalık gebeliği mevcuttu. Yapılan ultrason muayenesinde retroplasental yaklaşık 6 cm lik hipoekoik bir alan ve bu bölgeye yakın yaklaşık 1 cm lik hiperekojen odak izlendi. Yine batın inspeksiyonunda umbilikusun 2 cm altında kanayan bir kesi alanı izlendi. Dekolman plasenta tanısıyla acil düştük. Ameliyat esnasında plasentanın % 50 dekole olduğu ve plasenta ile myometrium arasında bir memri parçası olduğunu gördük. Memri parçasını çıkarıp uterusun perforasyonu tamir ettik. Ateşli silah yaralanmasının anne ve fetusu etkilemeksizin abrusyo plasentaya yol açması nedeniyle bu vakânın önemli olduğunu düşündük.

**Anahtar Kelimeler**

Ateşli Silah; Gebe; Uterus

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**Abruptio Placenta Caused by Gunshot Injury in Second Trimester: A Case Report**

İkinci Trimesterde Ateşli Silah Yaralanmasına Bağlı Oluşan Plasenta Dekolmanı: Bir Olgu Sunumu
Introduction
Abruptio placenta (AP) is defined as the preterm partial or complete separation of normally implanted placenta from the uterine wall [1]. The incidence of 4.4% has been reported in developing countries. Although the etiology is generally multifactorial maternal trauma may be an important reason [2]. Trauma is the leading nonobstetric cause of maternal death. Penetrating trauma during pregnancy primarily involves gunshot and stab wounds. The incidence of visceral injury in pregnant women with penetrating abdominal trauma is 16% to 38% versus 80% to 90% in the general population [3]. Gunshot wounds to the abdomen during pregnancy are becoming increasingly common, especially in countries adjacent to those impacted by war. There is extensive literature about gunshot wound in pregnancy influencing the fetus, rectosigmoid junction, and the jejunum [4,5]. In our case, only AP was observed and had not affected any part of the fetus, membranes, bowel, and other maternal abdominal organs. Therefore, this case was considered rare, interesting and important.

Case Report
A twenty-nine year-old multigravida woman whose gravity 4, parity 3, was admitted to our clinic due to a gunshot injury. She had 24 weeks’ gestation. In an ultrasound examination, it was found that the fetus was alive but bradycardic, there was a 6-cm hypoechogenic area located retroplacentally and a 1-cm hypererechogenic focus near to this area. Also in fetal examination; femur length was 22 weeks, biparietal diameter was 22 weeks-1 day, fetal weight was 390 g. At the inspection, subumbilical a 2-cm actively bleeding incision was revealed. On vaginal examination, the cervix was closed and there was no vaginal bleeding.

On admission to our hospital the patient was hemodynamically stable. The initial Hb was 10.7 g/dL; Hct 34.8%; WBC 12.700; Plt 244,000; APTT 24.1; INR 0.96; blood pressures 110/85 mmHg; and heart rate 90 beats per minute.

We decided to make an emergent surgery due to AP after the family’s informed consent. An emergent caesarean section under general anesthesia was performed. During the operation, we observed a 2-cm bleeding rupture area in the uterine fundus, peritoneal cavity contained approximately 300 ml of coagulated blood and 50% separation of the placenta after fetal delivery (figure 1). The fetus was born 350 g, a single male and intact but APGAR score was 0-0. We found a piece of bullet between the placenta and myometrium (figure 2). We removed a piece of bullet, then repaired the uterine perforation and performed a caesarean section. A general surgeon was consulted intraoperatively to evaluate her intestine, liver, spleen and other organs. There was no additional pathological finding. The neonatologist resuscitated but the fetus didn’t respond to resuscitation. The metallic object was given to the hospital police, noted in the official report (figure 3).

There were no complications postoperatively. The woman was discharged four days after the caesarian section.

Discussion
Abruptio placenta (AP) is defined as the preterm partial or complete separation of a normally implanted placenta from
the uterine wall [1]. Etiology is generally multifactorial, some of these are placental insufficiency, intrauterine hypoxia, hypertensive disorders of pregnancy, nonvertex presentation, polyhydramnios, advanced maternal age, cigarette smoking, short umbilical cord, sudden decompression of the uterus, retroplacental fibromyoma, retroplacental bleeding from needle puncture (i.e. post amniocentesis), prior fetal demise, previous miscarriage, grand multiparity, preterm rupture of membranes, low prepartum body mass index and maternal trauma [1,2].

Motor vehicle accidents are the most common cause of nonobstetric trauma, and account for up to 80% of trauma in pregnancy [6]. Penetrating trauma has been found to be the cause of 9% of all pregnancy traumas admissions. Of those, 73% was gunshot wounds, 23% stab wounds and 4% shotgun-related. Penetrating trauma in pregnancy was associated with a maternal mortality of 3.9-7% and with an increased fetal mortality (as high as 73%) [7].

Gunshot wounds to the abdomen during pregnancy are becoming increasingly common. In this case AP had been caused by trauma due to a gunshot. The literature about trauma during pregnancy indicates that 4-8% of women with trauma are suffered from their close partners [8,9]. In our case, the woman did not know who guilty was because she was exposed to this accident while attending the wedding of her neighbor. It may be battle bullet from Syria where is close to the wedding place or by the any one of the people in the wedding.

An important fact is that pregnant women, who is suffered from trauma, are special patients because pregnancy causes physiological and anatomical changes: such as increased blood volume, an expansion of plasma volume, which causes a diuretical effect known as physiological anemia and increased heart rate. These changes allow a loss of up to 30 % of circulating volume without changes in vital signs; however, the fetus may be affected. Management of these patients should be multidisciplinary, by the general surgeon, the obstetrician and the neonatologist [5]. In our case the patient was hemodynamically stable but the fetus was born 350 g, a single male and APGAR score was 0-0, so the neonatologist resuscitated but the fetus didn't respond to resuscitation.

Advanced imaging techniques ( i.e. MR, CT) in traumatic patient can be done if the patient is stable condition, however ultrasound is often easily accessible in an emergency department and can provide crucial information in the pregnant patient with trauma [10]. AP is principally an emergency condition and might proceed aggressively hypovolemic shock, disseminated intravascular coagulation and maternal death if the patient is not treated immediately. So we performed only ultrasound, although our patient was hemodynamically stable when she was admitted.

The gravid uterus is a protective barrier against other organs during trauma, so it is more likely to be injured. A great amount of energy of the trauma is absorbed by the uterine musculature, amniotic fluid and the fetus. This reduces the force of the impact and the possibility of damaging other organs. The results in the fetus are generally worrisome, causing direct impact up to 60-90%. In these cases maternal mortality is around 7-9% while fetal mortality is approximately 70% [7,11]. In our case, the uterus was in suprapubic level and had absorbed the piece of bullet, therefore, other intraabdominal organs had remained intact. Although the fetus is intact the gestational week was low, 24 week, and AP was occurred. Because of this, pregnancy loss was inevitable.

**Conclusion**

Gunshot wounds are becoming increasingly common in society. The pregnant women is also at great risk. Often the mother and fetus are both affected. Less seldom, they both are unaffected but the placenta may be affected. So, an ultrasound examination should be done carefully in all traumatic pregnant women. In the management of a pregnant woman with a gunshot injury, it must be considered from three perspectives; the mother, the fetus and the placenta.

**Competing interests**

The authors declare that they have no competing interests.

**References**


