Spontaneous rupture of the ovarian artery following spontaneous vaginal birth

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Hemorrhage from ruptured ovarian vessels is an extremely rare but life-threatening complication during pregnancy.[1] These are very few earlier reported cases on postpartum ovarian artery rupture after delivery.[2-3] We describe a patient with spontaneous ovarian artery rupture 5 hours after delivery.

A 30-year-old woman, gravida 5 para 5 (G5P5) was referred to the Obstetrics Department with the complaint of diffuse abdominal pain and minimally vaginal bleeding 5 hours after delivery. The pain was associated with nausea and vomiting. Her antenatal course was uneventful, and past obstetric history included a previous cesarean section followed by 3 normal vaginal births no systemic illness. On physical examination, she seemed to be in moderate distress secondary to abdominal pain. The body temperature was 37°C, heart rate was 110 beats/min, respiratory rate was 20 breaths/min, and blood pressure was 90/60 mm Hg. Abdominal examination revealed diffuse and rebound tenderness. Pelvic examination revealed a tender uterus with a post delivery open cervix and minimal vaginal bleeding. The attending radiologist performed ultrasonographic examination, which revealed a normal liver and spleen. Perihepatic and perisplenic, an amount of free fluid was visible in the abdomen. Her hematologic workup demonstrated hemoglobin =8.38 g/dl (normal range [NR]: 12.3-15.3 g/dl), hematocrit=4.1% (NR: 37.7-53.7%), white blood cell=1300 (NR: 4.4-11.3 uL), platelet counts=385,000 x 10^3/ul (NR: 142-424 uL). Hemoglobin level gradually decreased and she seemed to enter a state of shock. We performed emergency exploitive laparotomy with a suspicion of uterine rupture. After opening the peritoneum approximately 1500 ml blood was aspirated. There was no retroplacental hematoma. Further inspection of uterus, tubes, and ovaries were normal. The liver, spleen, stomach, gallbladder, and intestines showed no signs of bleeding. Closer inspection showed the spontaneous rupture of left ovarian artery, which was bleeding. Left ovarian artery was sutured primarily and we observed no further bleeding. After operation she was referred to their intensive care unit in a stable condition. She was transfused with 5 units of blood intra- and postoperatively, and as the postoperative course was uneventful, she was discharged home on the 4th day of admission.

Hemorrhage from ruptured ovarian vessels is a rare but life-threatening complication during pregnancy.[1] Mojab and Rodriguez,[2] and Ginsburg et al[3] discussed postpartum ovarian artery rupture with retroperitoneal hemorrhage and post-partum spontaneous rupture of a branch of the ovarian artery. The clinical manifestation is mostly abdominal pain with hemodynamic collapse. Laboratory findings show a decrease of hemoglobin and hematocrit levels. Ultrasound examination demonstrates free fluid in the abdomen. At the beginning after delivery she had no signs of hemodynamic instability. The blood loss developed slowly and the level of hemoglobin decreased gradually; the young patient could adjust to the decreasing circulating volume of blood. Finally, she began to show signs of hemodynamic instability. The treatment consists of preoperative hemodynamic stabilization of the patient and urgent laparotomy. Rupture of uterus, uterine artery, utero-ovarian vessels, adrenal-gland vein, splenic vein, renal arterial aneurysm, kidney, liver or spleen should remain in differential diagnosis.[3] Cardiac output, heart rate, blood volume increases, and hormonal factors may impair the arterial wall and additional stress such as delivery may result in the spontaneous rupture of ovarian artery.[4] Structural changes in intima and media of the arterial wall are demonstrated during pregnancy. The observed hyperplastic intimal changes are histologically equivalent with the changes that appear with hypertension and oral contraceptive use.[5] All these changes during pregnancy may contribute to the etiology of spontaneous ovarian artery rupture following spontaneous vaginal birth. It is still controversial whether the arterial wall weakens during pregnancy and additional stress such as delivery or previous cesarean section may cause spontaneous rupture of ovarian artery.

Spontaneous rupture of an ovarian artery after delivery is an extremely rare complication. One must think about it in cases of diffuse abdominal pain and hemodynamic collapse. The treatment consists of performing a laparotomy with suturing of the ruptured ovarian artery.

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Two anatomic variations in the arm related to the median nerve

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Disorders of the peripheral nervous system are quite common; of these disorders entrapment neuropathies are frequently encountered by the clinician. The term entrapment neuropathy implies that the nerve is compressed by adjacent anatomic structures.[1-2] Distribution of the median nerve in the arm is rarely subjected to variation, but there are numerous report regarding median nerve compression. Variations of the nerve and the adjacent structures may be seen clinically or observed during surgery, autopsy or cadaveric dissection. We recently encountered 2 anatomic variations that can possibly cause entrapment neuropathy of the median nerve during our routine cadaver dissections. Typically, the median nerve receives fibers from C6, C7, C8 and T1 spinal nerves and supplies motor, sensory and sympathetic nerve fibers to the upper limb. In the arm, its course is closely related to the brachial artery. Along with the brachial artery, it travels between the brachialis (Br) and the medial intermuscular septum in the arm until it reaches the nerve and the cubital fossa, which has no branches. Sometimes a small branch to the brachial artery can be seen. At the distal humerus, both nerve and artery pass through the antecubital fossa underneath a fibrous sheath and the bicipital aponeurosis, which takes origin from the biceps tendon and the fascia of the flexor-pronator mass. It then passes between the 2 heads of the pronator teres. In this muscle, the largest branch can be found, the anterior interosseus nerve. The nerve continues in the forearm between the flexor digitorum profundus and flexor digitorum superficialis.[2]

We encountered 2 anatomic variations that can cause entrapment neuropathy of the median nerve during our routine student dissections. In one of our dissections, we encountered a variation of the median nerve at the level of the Br. The cadaver was a 47-year-old male and has no visible scars or wounds on both upper extremities. Normally, the median nerve courses in the groove between the biceps brachii (BB) and Br.[2] The median nerve can be compressed above the elbow due to an accessory tendon, which arises form the Br in 10% of the cases. According to some authors, the muscle fibers arise form the Br connect to some of the fibers of BB and end in bicipital aponeurosis and compress. In this case, which is located in the arm, at 9 cm proximal to the medial epicondyle, the nerve leaves the brachial artery and passed through the antecubital fossa piercing the Br (**Figure 1a**). The course of the median nerve on the other arm was normal. In another dissection, we encountered an abnormal pattern of the accessory head of flexor pollicis longus (FPL) (Gantzer's muscle). The cadaver was a male with unknown age with no visible scars or wounds on both upper extremities.

Gantzer's muscle is the accessory head of the FPL, which usually originates from medial epicondyle or processus coronoideus and lies on the ulnar side of the FPL. It has been implicated as one of the causes of the anterior interosseous nerve (AIN) compression in the proximal forearm.[1,3-5] The anterior interosseous nerve is the largest branch of the median nerve is the forearm and has no sensory fibers.[2] The incidence of the Gantzer's muscle was reported between 45-74%.[3-5] The difference of these ratios might be due to the fact that the muscle can be fused with some of the superficial flexor group and can be overlooked during dissection. The muscle usually passes between the superficial branch of the median nerve and the anterior interosseous nerve; but rarely passes superficially to both of the nerves.[2]