Presence of abnormal obturator artery and an abnormal venous plexus at the anterolateral pelvic wall

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Abstract

Introduction
Obturator artery (OA) is a branch of anterior division of the internal iliac artery (IIA). It is accompanied by the obturator vein (OV) which terminates into the internal iliac vein (IIV). In about 20-25% cases, OA arises from the inferior epigastric artery (IEA) instead of the internal iliac artery (EIA) and then it is called an abnormal obturator artery (AOA). Normally we do not find a venous plexus on the lateral wall of the pelvis.

Case report
We report the presence of an AOA arising from IEA. AOA was accompanied by an abnormal obturator vein (AOV) which terminated into the inferior epigastric vein (IEV). In addition, there was a normal OV accompanying the obturator nerve (ON). It terminated by opening into the internal iliac vein (IIV). Further there was a prominent venous plexus in relation to the anterolateral wall of the pelvis. This plexus communicated with prostatic and vesical venous plexuses anteriorly; inferior epigastric vein (IEV) and external iliac vein (EIV) superiorly; and OV posteriorly.

Conclusion
Knowledge of presence of AOA is very handy in reducing the strangulated femoral hernia. Knowledge of possibility of an abnormal venous plexus on the lateral pelvic wall is important in pelvic surgeries.

Introduction
OA is usually a branch of the anterior division of internal iliac artery (IIA). It runs forwards on the lateral pelvic wall, accompanied by the OV and ON. It leaves the pelvis by passing through the obturator foramen. In the thigh, it supplies the muscles of the adductor compartment. It is accompanied by OV which terminates into IIV. In about 20-25% cases, OA arises from IEA instead of IIA and then it is called AOA.

Lateral wall of the pelvis has the obturator internus muscle, covered by the obturator fascia. The levator ani muscle arises from the tendinous arch of the fascia covering the obturator internus muscle. Normally there is no venous plexus in the anterolateral wall of the pelvis.

Case report
We report the vascular variations observed in the left half of the pelvis of an adult male cadaver aged approximately 70 years. The lateral wall of the pelvis had the ON and OV, but normal OA was absent. AOA arose from IEA and coursed backwards, crossed the superior ramus of the pubis and entered the obturator foramen (Figure 1 and Figure 2).

AOA was accompanied by AOV which terminated into IEV. The normal OV which accompanied the ON, terminated by opening into IIV. Further there was a prominent venous plexus in relation to the anterolateral wall of the pelvis (Figure 1 and Figure 2). This plexus communicated with prostatic and vesical venous plexuses anteriorly; IEV and EIV superiorly; and OV posteriorly.

Discussion
Variations in the origin of OA are not uncommon. It originates from common iliac or anterior division of the internal iliac artery in 41.4% of cases, from the inferior epigastric artery in 25% of cases, from the superior gluteal artery in 10% of cases, from the inferior gluteal or internal pudendal arteries in 10% of cases and from the external iliac artery in 1.1% of cases. Its origin from the posterior division of the internal iliac artery has also been reported. In some cases, an additional obturator artery is seen supplementing the normal OA. Such an artery is called accessory OA. Accessory OA is found to be present in 30-40% of cases. When both the normal and accessory OA are present with rich anastomoses at the obturator canal it is known as "corona mortis" or "crown of death". In other words, it is the anastomosis between the pubic ramus of the IEA and the OA.

There are reports on the existence of a venous corona mortis also. It is more frequent than the arterial corona mortis. In a study conducted by Darmanis et al., a very high incidence of either arterial or venous corona mortis was noted. Rusu et al., have classified the venous corona mortis into three types. In type I, OV drains into EIV; in type II, OV drains into IEV and in type III, OV anastomoses with IEV. The venous plexus that we are reporting here does not belong to any of the above categories.

The area of the pelvic brim and lateral pelvic wall is very important and it is the anchoring site for the repair of inguinal and femoral hernias. During surgery, the abdominal muscles are retracted laterally by applying pressure on the lateral pelvic wall. Hence a very good knowledge of arterio-venous variations in this area is very important for surgeons. Knowledge of the current variations is quite useful in Burch procedure, as they might bleed significantly in this procedure. The venous plexus that is being reported here is more dangerous than the earlier mentioned venous corona mortis due to its extensive communications. It might bleed...
significantly during orthopaedic and surgical procedures of this region and also can transmit the prostatic cancer to many regions.

**Conclusion**

Though the occurrence of abnormal OA is not very uncommon, it is extremely rare to find a venous plexus on the anterolateral pelvic wall. This plexus might spread the prostate cancer in different directions and might bleed in surgical procedures involving lateral pelvic wall.

**References**