A case of abdominal aortic aneurysm accompanied by horseshoe kidney

At nalı böbreğe eşlik eden abdominal aort anevrizması: Olgu sunumu

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Abdominal aortic aneurysm in the presence of horseshoe kidney is a very rare clinical entity. The connecting tissue is usually formed by a functional renal parenchyma, causing technical difficulties during surgery. An abdominal aortic aneurysm and horseshoe kidney was detected in a 52-year-old male patient. Following a median incision in the abdomen a transperitoneal approach was used to explore the aneurysm, which was noted to involve both iliac arteries. The lower poles of both kidneys were connected with a thick isthmus overlying the aneurysm. The aneurysm was wrapped with a Dacron patch extending to the proximal segments of both iliac arteries, without opening the sac. There was no complication during the operation or in the postoperative period. After 10 months, he was asymptomatic and enjoying normal daily activities.

Key words: Aorta, abdominal/surgery; aortic aneurysm/complications/surgery; kidney/abnormalities; renal artery/abnormalities.

At nalı böbrek anomalisi varlığında oluşan abdominal aort anevrizması oldukça nadir görülen bir tablodur. Çoğunlukla böbrek parenkim dokusundan oluşan istmus, anevrizmanın cerrahisi sırasında teknik zorluğa neden olmaktadır. Elli iki yaşında bir erkek hastada abdominal aort anevrizması ve at nalı böbrek saptandı. Karında açılan medyan kesiyi takiben transperitoneal yaklaşımla anevrizmanın eksplorasyonu yapıldı. Anevrizmanın her iki iliyak arteri tuttuğu görüldü. Her iki böbreğin alt polleri anevrizmayı örten kalın bir istmus ile bağlantılıydı. Anevrizma kesesini açmaksızın, anevrizma, her iki iliyak arterin proksimal kısımlarına uzanan Dacron yama ile sarıldı. Ameliyat sırasında ve ameliyat sonrası dönemde komplikasyon olmadı. On ay sonra, hastanın asemptomatik olduğu ve normal günlük işlerini yapabildiği görüldü.

Anahtar sözcükler: Aort, abdominal/cerrahi; aort anevrizması/komplikasyon/cerrahi; böbrek/anormallik; renal arter/anormallik.

Horseshoe kidney (HSK) is the most common embryological anomaly of the kidney. The origin of this pathology is the fusion of two kidneys, especially connection of the lower poles with a functional renal parenchyma.[1] Renal vascular anomalies are usually found in this anomaly, and only 30 per cent of the patients have a single renal artery and vein on each side.[2] Coexistence with abdominal aortic aneurysm is extremely rare, and this combination represents a challenge for the vascular surgeon at the time of aneurysm repair.[3] We report a case of an expanded and symptomatic abdominal aortic aneurysm accompanying HSK.

CASE REPORT

A 52-year-old male was admitted to the hospital with symptoms of abdominal pain and a pulsatile mass in his abdomen. Physical examination was consistent with expansion of the abdominal aorta. Computed tomography revealed an abdominal aortic aneurysm. The diameter of the abdominal aorta was approximately 5.5 cm, and a thick thrombus layer was noted at the anterior wall of the lumen. Furthermore, HSK was detected coexisting the aortic aneurysm (Fig. 1). At the operation, the abdomen was opened by a median incision, and a transperitoneal approach was used to explore the aneurysm. The aneurysm involved both iliac arteries, and the lower poles of both kidneys were connected with a thick isthmus overlying the aneurysm. Dissection of the isthmus revealed that the right renal artery originated from the aneurysm sac. An accessory artery arising from the sac, which was probably feeding the isthmus mass, was identified on the left side. The left renal artery originated from the normal-sized aorta above the aneurysm. In this regard, it was felt that separation of the isthmus might cause serious ischemia in the connection tissue. In addition, following mobilization of the isthmus, preservation of the right renal artery might be more difficult because of the originating area. Therefore, the aneurysm was wrapped with a Dacron

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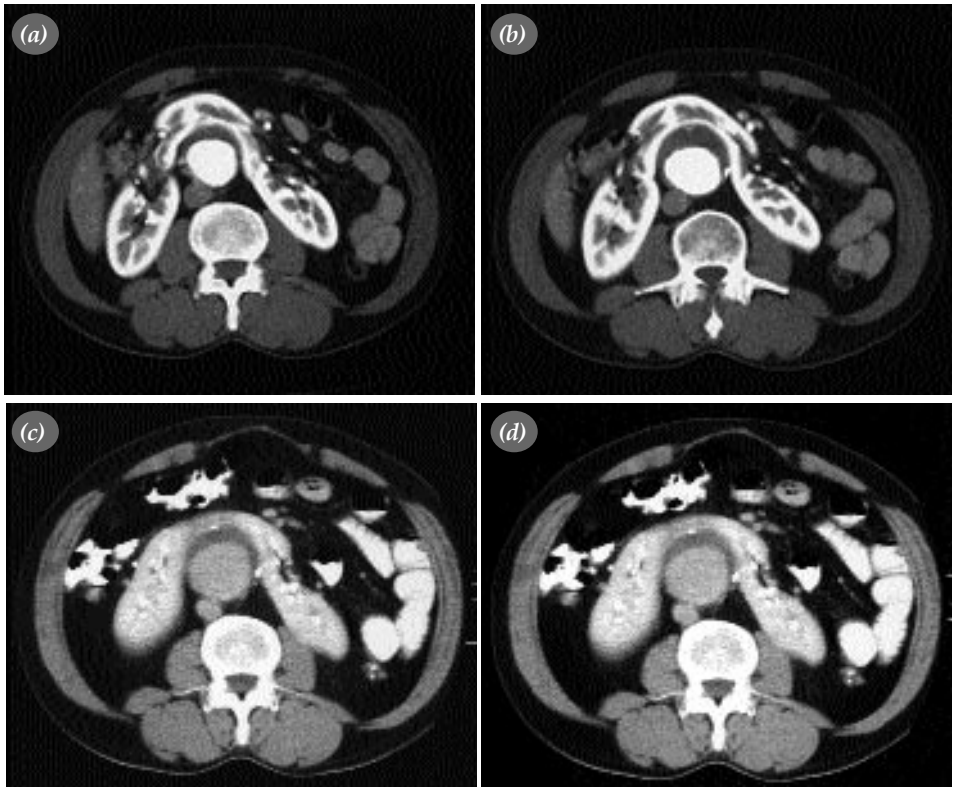

Fig. 1. (a,b) Computed tomography scans showing an abdominal aortic aneurysm and coexisting horseshoe kidney. **(c,d)** Postoperative scans after 10 months showing the aneurysmal sac and iliac arteries not different from the preoperative dimensions.

patch extending to the proximal segments of both iliac arteries, without opening the sac. There was no complication during the operation or in the postoperative course, and the patient was discharged in good health on the eighth day of the operation. After 10 months, the patient presented for a routine check-up. Computed tomography showed no abnormal findings, and the diameters of the aneurysm sac and iliac arteries were not different from the initial measurements (Fig. 2). He was asymptomatic, well, and enjoying normal daily activities.

DISCUSSION

The coexistence of HSK and an abdominal aortic aneurysm was reported to be in only 0.12% of patients undergoing aneurysm surgery,[4] and this condition poses some technical difficulties during operation. Since the connection tissue between both kidneys commonly has a functional renal parenchyma, there is no consensus whether or not to divide the isthmus. Division increases the risk for graft infection because of high rates of urinary system infection in HSK patients.[5] Furthermore, the isthmus tissue, which contains renal collecting system elements, carries a high risk for urinary fistula development after the operation.[6] Massive hemorrhage and renal necrosis are other risks. Although division may provide better exposure and technical ease, many authors advocate avoidance from division because of these potential complications.[3] The type of surgical approach should be determined carefully in these patients. Although the transperitoneal exposure provides complete visualization of the retroperitoneal cavity and both iliac arteries, some authors suggest the retroperitoneal approach to facilitate exposure, which is usually obscured by the isthmus.[7] In our case, we preferred a median incision and the transperitoneal approach. Wrapping the abdominal aortic aneurysm in the presence of HSK was reported previously.[8] Even though the essential surgical treatment is to repair the aneurysm via placement of a graft, the anatomic pathology of HSK did not allow us to perform the optimal surgery. Another alternative method is to insert a stent-graft. Despite its high cost, this method is less invasive and may provide a better prognosis in selected patients in whom graft placement cannot be employed.

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