

Successful surgical treatment of bilateral iliac artery aneurysm

İki taraflı iliyak arter anevrizmasının başarılı cerrahi tedavisi

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Isolated aneurysm of the bilateral iliac arteries is rare, and frequently follows an asymptomatic clinical course. According to the diameter, length, and anatomical relation of the aneurysm, and its compressive effects on surrounding structures, surgery or an endovascular treatment can be preferred. In a 65-year-old male patient with ischemic heart disease, who had had a previous coronary angiography in another center, bilateral iliac artery aneurysm and occlusion of the right iliac artery were incidentally diagnosed during a coronary angiography. While coronary artery disease needed a medical treatment, surgical treatment was scheduled for bilateral iliac artery aneurysm. Bilateral iliac arteries were explored through an abdominal incision. After exclusion of the aneurysm by sparing only the right internal iliac artery, bypass grafting to the right femoral and left iliac arteries was performed by using a 16/8 Dacron graft. The patient was discharged after an uneventful post-operative course. In conclusion, isolated iliac artery aneurysms may follow an asymptomatic clinical course and the symptoms can be masked by concomitant coronary artery disease. We presented a successful surgical management of a rare pathology of bilateral iliac artery aneurysm.

Key words: Abdominal aorta; aneurysm; angiography, coronary; iliac arteries.

In patients presented with abdominal aortic aneurysms, sometimes the iliac arteries may also be involved. However, isolated iliac artery aneurysms are very rare pathologies and their incidence is approximately 0.6% among all aneurysms located intra-abdominally.^[1-4] These patients are usually asymptomatic and may present with peripheral embolism, thrombosis and acute rupture, the latter being the most devastating complication. The risk of rupture has been reported to vary between 14 and 70%, and surgical intervention is usually recommended for iliac aneurysms with a diameter exceeding 3 cm.

İzole iki taraflı iliyak arter anevrizması nadiren görülür ve klinik olarak sıklıkla asemptomatik seyreder. Anevrizmanın çapı, uzunluğu, anatomik komşuluğu ve çevre dokulara olan bası semptomlarına göre cerrahi ya da endovasküler tedavi tercih edilebilir. Daha önce başka bir merkezde koroner anjiyografi uygulanan 65 yaşındaki erkek hastaya, kliniğimizde de iskemik kalp hastalığı nedeni ile koroner anjiyografi uygulanırken, tesadüfen iki taraflı iliyak arter anevrizması ve sağ iliyak arter oklüzyonu saptandı. Koroner arter hastalığı medikal tedavi ile takip gerektirirken, anevrizmaya cerrahi tedavi planlandı. Abdominal insizyon ile iki taraflı iliyak arter anevrizması eksplere edildi. Sadece sağ internal iliyak arter korunacak şekilde anevrizma eksklüzyonunu takiben 16/8 mm Dacron greft ile aort, sağ femoral ve sol iliyak artere bypass uygulandı. Ameliyat sonrası dönemde hasta sorunsuz taburcu edildi. Sonuç olarak izole iliyak arter anevrizmaları asemptomatik seyredebilir ve semptomlar eşlik eden koroner arter hastalığı tarafından maskelenebilir. Bu yazıda nadir görülen iki taraflı iliyak arter anevrizmasının başarılı cerrahi tedavisi sunuldu.

Anahtar sözcükler: Abdominal aort; anevrizma; anjiyografi; koroner; iliyak arter.

CASE REPORT

A 65-year-old male patient was admitted to our department with the complaint of chest pain. He was previously evaluated using coronary angiography at two different centers and he was placed on medical treatment for coronary artery disease. We decided to repeat the coronary angiography in order to assess the coronary status of the patient. During the catheterization from the right femoral artery, we failed to advance the guidewire, but our attempt from the left femoral artery was successful. The angiography revealed plaque formation in the

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circumflex and right coronary arteries not causing any critical stenosis. During the angiographic evaluation, the diagnosis of bilateral iliac artery aneurysm was established (Fig. 1). Medical treatment was considered for the coronary lesions and surgery was recommended for the iliac aneurysms.

Abdominal cavity was entered through the standard median laparotomy incision under general anesthesia. Exploration revealed two aneurysms with the diameters of 6 cm and 3.5 cm on the right and left external iliac arteries, respectively. The aneurysm on the left side involved also the root of the left internal iliac artery and there were dense adhesions extending towards the left iliac vein. Major vascular structures were held in position and an aneurysmorrhaphy procedure was carried out in both external iliac arteries. A lateral clamp was placed in the distal part of the abdominal aorta and a proximal anastomosis of 16-8 Hemashield Y graft was performed. Following the resection of the aneurysmatic portion of the left internal iliac artery, the remaining distal part was re-implanted into the graft. The right iliac artery was completely occluded. Next, the distal legs of the graft were anastomosed to the corresponding main femoral arteries and the procedure was completed. The patient had an uneventful postoperative course and was discharged on the seventh postoperative day.

DISCUSSION

Iliac artery aneurysms usually accompany the aneurysms of the abdominal aorta. Isolated iliac artery aneurysms only account for 0.6% of all intra-abdominal aortic aneurysms, and therefore a bilateral presentation is quite an unusual occurrence.^[1-4] The frequency increases with age and cases younger than 60 years of age are quite rare. Seventy to 90% of the aneurysms occur in the main iliac artery. As in all abdominal aortic aneurysms, atherosclerosis plays a major role in the pathogenesis. Other potential causes include infections, pregnancy, trauma, and collagen tissue disorders.^[3,5] Most of the cases with iliac artery aneurysms are asymptomatic. Local pressure, thrombosis or embolic events may lead to clinical signs. Our case presented with chest pain and he had no signs suggesting any peripheral artery disease. The imaging study performed because of the failure to advance the guide wire revealed the aneurysms in the external iliac arteries. In our case, the coincidental finding of the bilateral iliac artery aneurysms with a high risk of rupture underscores the importance of the need to evaluate the patients thoroughly. The symptoms of coronary artery disease often masks the accompanying peripheral lesions, and critical lesions like this may be overlooked by focusing solely on the main source of the symptoms. Even in patients with no signs/symptoms of peripheral arterial disease, we recommend that an

abdominal aortography is performed during the coronary angiography.

Erosive complications in the surrounding tissues arising from the gradual enlargement of the lesion and the high risk of rupture necessitate surgical repair under favorable conditions.^[6] The preoperative radiological examination guided by the clinical evaluation is of utmost importance. Detailed examination of the location, size, and the relation with the surrounding tissues determine the surgical strategy and its outcomes.^[3] Particularly in bilateral aneurysms, the protection and reimplantation of the internal iliac artery is very important. Excessive bleeding due to pelvic venous injury and inability to maintain sufficient collateral circulation during the surgery are the major causes of morbidity and mortality.^[4,7] Iliac artery aneurysms are technically difficult to deal with and require scrupulous surgical manipulation.^[5] The two procedures that are applied most frequently are aneurysmorrhaphy and graft interpositions. In our case, to avoid any possible pelvic ischemia, we chose to perform a graft reimplantation following the resection of the aneurysm in the left internal iliac artery. The anatomical structure of the right internal iliac artery was not amenable for reimplantation; therefore, the artery was tied with silk strip. The injuries occurring in the iliac vein during the dissection of the left main iliac artery were repaired primarily.

Percutaneous procedures including coil embolization and endovascular stent graft implantation have been advocated as the alternative methods for repairing iliac artery aneurysms.^[8,9] Although selective coil embolization has been described in the literature,^[8] experience with this technique as an adjunct to percutaneous modalities or surgical intervention is limited. The diameter of



Fig. 1. Bilateral iliac artery aneurysms detected in the angiography.

the aneurysm, and the detailed imaging of the proximal and distal neck regions by contrast-enhanced spiral computed tomography are important factors in the selection of patients. It has been proposed that the diameter of the proximal and distal neck of the lesion should exceed 1.5 cm for the procedure to be performed.^[8] Also, the unilateral or bilateral anatomical location of the aneurysm are important factors in the choice of the type of graft to be used and for the additional procedures to be performed.^[9,10] In their series of 25 patients, Parsons et al.^[11] reported that procedure-related complications have been observed in 12% of the patients treated using endovascular means. He also stated that the size of the aneurysm remained unchanged after these modalities. Since one of his patients suffered from an aneurysm rupture at the end of 17 months, he emphasized the importance of long-term follow-up in terms of the durability of endovascular treatment.^[11] The presence of thrombus in the aneurysmal sac complicates the placement of the graft and predisposes to subsequent leakage from the graft. The higher the diameter of the aneurysm, the lower is the chance of success. The importance of patient selection with regard to short- and long-term outcomes has also been emphasized.^[8-11] An extensive experience with endovascular repair has been reported in a multicentered French study,^[12] where 27 iliac aneurysms in 26 patients were treated by endovascular means. In this study, the immediate failure rate was reported to be 18.5%; however, the follow-up time was limited to 12 months. Recently, a series of 35 patients has been reported by Tiellu et al.^[13] In their study, the follow-up period was 31.2±20.7 months. Although the early complication rate was acceptable, the internal iliac artery was sacrificed in 70% of the patients and this caused gluteal claudication in three patients. In our patient, the diameter of the aneurysm on the right external iliac artery was 6 cm and the neck region was quite narrow. Also, due to the high risk of pelvic ischemia that may result from failure to protect the internal iliac artery after the placement of the bilateral coated stent, we preferred an open surgical procedure. In the operation, we re-implanted the left internal iliac artery onto the prosthetic graft and tried to protect pelvic perfusion.

In conclusion, surgical procedures are still considered the “Gold standard” for the rare cases of iliac artery aneurysms, although several alternative approaches exist. The close anatomical relationship with the sur-

rounding tissues and vascular structures underlines the importance of an adequate surgical manipulation.

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