A Rare Complication of Iliac Artery Stenting: Acute Lower Extremity Ischemia Secondary to Early Stent Fracture: Case Report

İliyak Arter Stentlemenin Nadir Bir Komplikasyonu: Erken Dönem Stent Kırılmasına Bağlı Akut Alt Ekstremite İskemisi

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ABSTRACT A 57 years old male patient with Fontain class 2b symptoms is diagnosed with iliac artery stenosis and was treated with a balloon expandable stent implantation in his right common iliac artery. After 10 days of the intervention he came to our hospitals emergency department with complaints of pain and coldness in his right leg. Arteriography showed stent fracture, in the right iliac artery. Rupture and thrombosis in the iliac artery distal to the stent was also detected. We attempted to implant a stent in the previously implanted stent but the leakage due to rupture still present. Therefore a aorto biiliac stent graft was implanted with success.

Key Words: Iliac artery; ischemia; stents

ÖZET Elli yedi yaşında erkek hastanın fontain 2b şikâyetleri ile başvurduğu dış merkezde, iliyak arter stenozu saptanması üzerine sağ ana iliyak arterine balon ile genişletilebilir stent yerleştirilme öyküsü mevcut. Bu işlemden 10 gün sonra hasta sağ bacakta soğukluk ve ağrı şikâyetleri ile hastanemize başvurdu. Yapılan arteriografide sağ iliyak arterdeki stentin kırık olduğu tespit edildi. Aynı zamanda iliyak arterde rüptür ve distalinde tromboz saptandı. Hastaya öncelikle sağ iliyak arterdeki stent içine yeni bir stent yerleştirilmek istendi ancak rüptüre bağlı kaçağın devam etmesi üzerine endovasküler yöntemle aorta-biiliyak stent greft başarıyla yerleştirildi.

Anahtar Kelimeler: İliyak arter; iskemi; stentler

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There is a research to find alternative methods to conventional surgical procedures on the treatment of atherosclerotic iliac artery disease in the present day.[1] Balloon-expandable stents are commonly used in the treatment of iliac artery occlusion in recent years. Many studies reported complication rates from 8% to 12% in stenting process.[2] This complications may be procedure-related or due to a technical failure of the used stent. In this case report, we aimed to present a patient who was admitted to our hospital with signs of ischemia in the right leg and impaired general condition which was due to stent fracture showed by a computed tomography (CT) angiography whom a balloon expandable stent was implanted 10 days ago in another center because of iliac artery stenosis.

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CASE REPORT

A 57 years old male patient was admitted to a center with complaints of Fontain class 2b symptoms two weeks ago. He was diagnosed with right iliac artery stenosis and was treated with a balloon expandable stent (Figure 1a-c). After 10 days of his discharge he came to our hospital's emergency department with complaints of pain and coldness in his right leg. The patient's general condition was moderate, he was conscious with pale appearance and he had no another pathology in his physical examination. In the left lower extremity signs of digital artery embolism with cyanosis limited to -the toes was inspected, the distal pulses were palpable. The right lower extremity was cold, pale, there was cyanosis on the toes and the distal pulses were not present. A fractured endovascular stent causing perivascular leakage and hematoma could be seen in the multislice CT angiography (Figure 2a-c). The arteriography showed that the proximal end of the stent was implanted proximal to the aortic bifurcation level and it was leaning to the right common iliac artery orifice. A pseudoaneurysm around the stented right common iliac artery and arterial dissection with thrombus occluding the artery beginning from the distal end of the stent was seen. A stent graft (Advanta V12 8x58 mm stent graft) was placed into the formerly implanted stent and a stent (Cordis smart 9x40mm Nitinol stent) was implanted in the occluded segment. The stent graft was implanted to the right common iliac artery, until it was reaching the aortoiliac junction the pseudoaneurysm could not be closed totally (Figure 3). A more proximal stent in the right would affect the flow of the left iliac artery and cause ischemia due

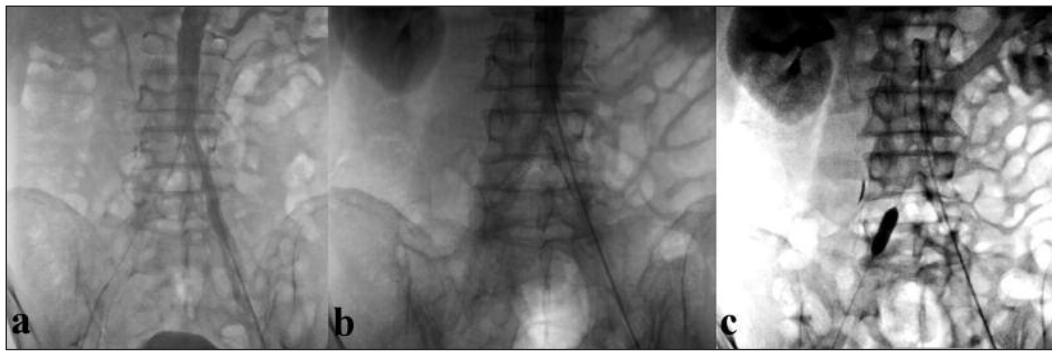

FIGURE 1: a. The arteriography of the first intervention showing stenosis in the right common iliac artery. **b.** Arteriography after stent implantation. **c.** Ballon dilatation in the stent.

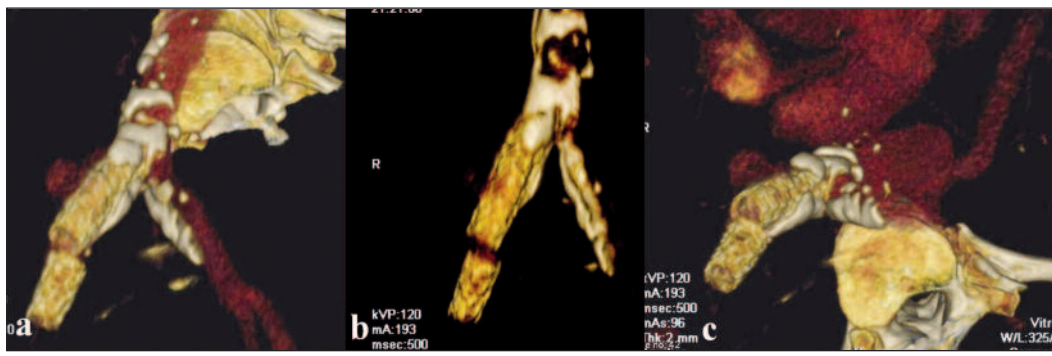

FIGURE 2: a. Three dimentional angiography with computed tomography taken in the emergency station showing the aortic bifurcation. The fractured stent is seen. Blood leakage lateral to the right common iliac artery is seen, there is no blood flow distal to the stent meanwhile the left common iliac artery and its bifurcation can be identified. **b-c.** Right oblique view and caudal view showing the fractured stent , endoleak and the calcified aortic bifurcation.

to compression made by the stent, therefore a aortobiiliac stent graft implantation is planned (Medtronic Endurant endovascular stent-graft) (Figure 4a-c). The control arteriography showed no endoleak. After the procedure, the patients ischemic complains regressed. The patient was discharged with cure, his therapy at home was planned and periodic follow up was recommended.

DISCUSSION

Percutaneous transluminal angioplasty (PTA) is a safe and effective method in the treatment of aortoiliac occlusive disease. However, treatment-related complications and recurrent stenosis can occur.

Balloon expanded stents are made of tantalum or stainless steel and are less flexible then self-expanding stents. The superiority of balloon-expandable stents over self-opening stents is precise implantation to the desired location in desired size.

In the endovascular treatment guide of iliac artery occlusive disease made by Tsetis et al. technical and initial clinical success rates were between 81%-91%. Complication rates were between 1.4%-15%.[3] Fracture of balloon-expandable stents are rarely reported in the literature. One of these cases is a 37-years-old male patient published in 2008 by Sawhney et al. In this case, left iliac artery stent fracture occurred after 2,5 years of bilateral iliac artery stenting with balloon expandable stents.[4]

Ichihashi et al. published in 2012, bilateral iliac stent fracture after 5.5 months of placement

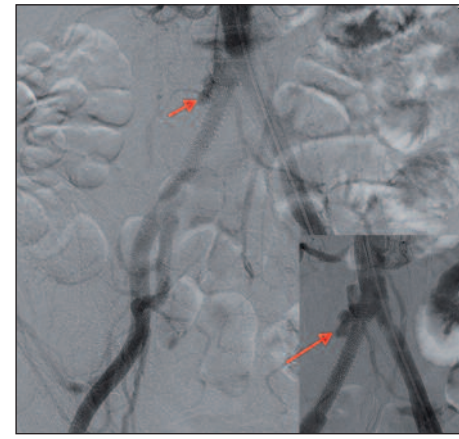

FIGURE 3: The new stent is implanted to the right common iliac artery, until it was reaching the aortoiliac junction the pseudoaneurysm could not be closed totally.

of a balloon expandable stent in a 76 years-old male patient with bilateral iliac artery stenosis. Stent fracture was explained with shiatsu massage applied daily by the patient in his groin area and hub.[5] However, what makes our case different from the others is that the fracture of the stent has occurred in a short period of 10 days after the procedure, and without any trauma or exercise after stent placement. Our patient had signs of acute ischemia of the right lower limb and hematoma around right common iliac artery.

In last years stenting techniques are frequently used as a alternative to surgery in iliac artery stenosis. The selection of the stent type is affected by various factors. The characteristics of a stent that is

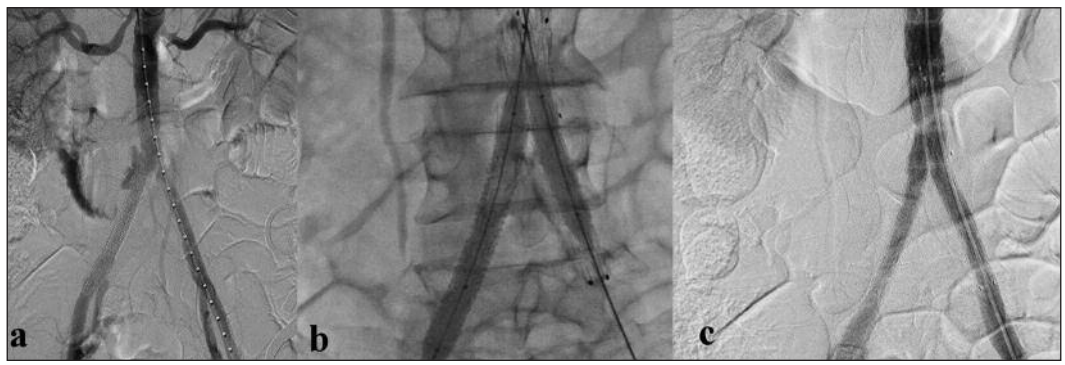

FIGURE 4: a. Arteriography after stent-graft placement in the common iliac artery and a stent distal to it the flow is reestablished but endoleak continues. **b.** Aortobiiliac stent graft is being implanted. **c.** Control arteriography after the final treatment, no endoleak is detected.

decided for a interventions and the complications that can occur must be kept in mind. Especially balloon dilatation should be avoided in heavily calcified vessels (and in aortic bifurcation). The only reasonable alternative to balloon dilatation in such lesions is surgery.

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