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Case report

Spontaneous Isolated Dissection of the Abdominal Aorta

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A B S T R A C T

Isolated spontaneous dissection of the abdominal aorta is such a rare entity and there are only a few cases reported in literature up to date. A 42-year old male was admitted to the hospital with mild pain in the lower abdomen and back that had began seven days prior to admission together with the sudden onset of the ischemic symptoms of the left leg (ischemic ulcers of the calf, gangrenous toe and pallor foot). Patient denied any trauma, hypertension history was negative, while he was active cigarette smoker. MSCT and digital subtracted angiography have shown a dissection of the abdominal aorta approximately two centimeters below the origin of the inferior mesenteric artery extending in the left common iliac artery, with no sign of the aneurysmatic dilatation of the abdominal aorta. Emergent surgery was performed with aortobiiliacal bypass graft interposition, amputation of the left toe and necrectomy of the left calf. Postoperative follow up and local vascular condition were satisfied. Even though is rare entity, isolated abdominal aorta dissection accounts for approximately 2–4% of all aortic dissection. Nowadays therapeutic regimen includes endovascular, open surgery or conservative treatment.

***Key words**: dissection, abdominal aorta, spontaneous dissection, infrarenal abdominal aorta, infrarenal dissection, aortic grafting, aortobiiliacal bypass*

Introduction

Primary dissection of the infrarenal abdominal aorta is extremely rare morphological finding, especially in the absence of trauma and concurrent aortic aneurysm. Usually occurs in male with history of an arterial hypertension, diffuse atherosclerosis and may be classified as traumatic, iatrogenic or spontaneous[1–3]. Acute aortic dissection occurs when blood flow entered to the medial aortic layer through the intimal wall as a result of the intimal tear that leads to the separation of the artery walls[2]. According to well known De Bakey classification all cases have to belong in three types depends of which aortic region affected so type I comprises ascendant aorta, aortic arch and could affect whole aorta, type II includes ascendant aorta, while type III is dissection of the aorta distally from the origin of the left subclavian artery[2]. Isolated aortic dissection of abdominal aorta is omitted from this classification and only type I and III includes this entity as a progression of the dissected thoracoabdominal aorta. This rare entity accounts up to 4% of all dissected aortas[2–7]. There are some reports of 2.5% incidence of abdominal aortic dissection whilst Crawford found only one case out of 250 thoracoabdominal dissections[5]. Predominantly affects older Caucasian male with history of hypertension and there is no correlation with known syndromes such as Marfan's and Ehlers Danlos that are connected with aortic disease[2,3]. Some of the cases are diagnosed sporadically in patients with no symptoms during CT examinations for other reasons. These cases do not demand any than conservative treatment. Therapeutic regimen includes surgical, endovas-

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cular, or conservative treatment[2,3,12]. In this article is reported a case of spontaneous infrarenal abdominal aortic dissection occurred in an ostensibly normal aorta in young male.

Case Report

A 42-year old male was admitted to the hospital with mild pain in the lower abdomen and with a history of acute onset of sharp pain in the right loin that had begun seven days prior to admission. Sudden onset of the ischemic symptoms of the left leg (pain, parestesia and pallor foot) followed after two days while five days later at the admission were already developed physical sign of ischemia such as ischemic ulcers of the calf and gangrenous toe. At the admission physical examination of the abdomen was not remarkable, pedal pulses were present on the right leg, while were absent on the right leg, even in the groin. Patient denied any trauma while hypertension history was negative. Urgent MSCT and DSA angiography were performed and dissection flap of the infrarenal abdominal aorta was revealed that began 2 centimeters below the origin of the inferior mesenteric artery and extending to the left common iliac artery (Figure 1). According to these findings and worsening of the ischemia of the left leg, patient underwent urgent operation that included aortobiiliacal bypass using Dacron graft, amputation of the toe and debridement of the left foot (Figure 2).

During surgery, a large left-sided aortic dissection was noted (Figure 3). The true aortic lumen was almost, while lumen of the left iliac artery was completely compressed. Distally, the dissection involved the left common iliac artery up to the origin of the external iliac artery. The right common iliac artery was not affected by dissection, the flow was normal.

The intimal tear of the aorta and false lumen began below the inferior mesenteric artery with no dissection noted in the proximal aorta. The patient underwent urgent aortic grafting and a dacron bifurcated (16 x 8 mm) graft was implanted with an end-to-end anastomosis proximally (Figure 2). The false lumen below transection was obliterated by suturing to prevent bleeding from the lumbar arteries. In view of the extent of the findings described above, the distal anastomoses comprised a right end-to-side anastomosis to the common iliac artery and the left end-to-side anastomosis to the external iliac artery. Postoperative recovery was successful, ischemic ulcers of the left calf and wounds after amputation of the left toe healed promptly and patient was discharged home ten days later. In postoperative follow-up two months after surgery, patient was free of claudication, had a palpable pulses in both lower limbs, while wounds and ulcers healed completely.

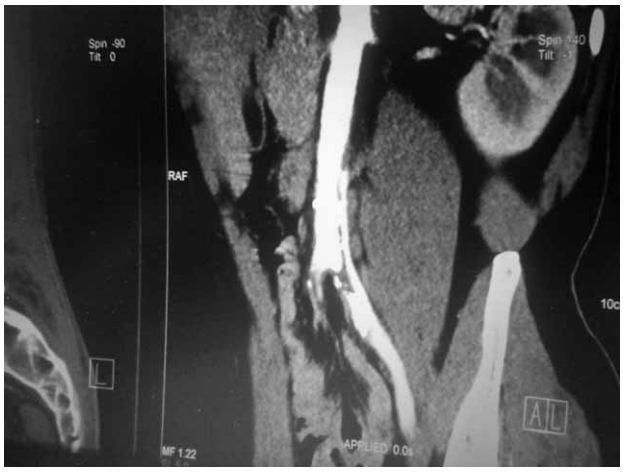

Fig. 1. MSCT angiography showing a site of dissection below inferior mesenteric artery labeled by arrow with progression in the left common iliac artery.

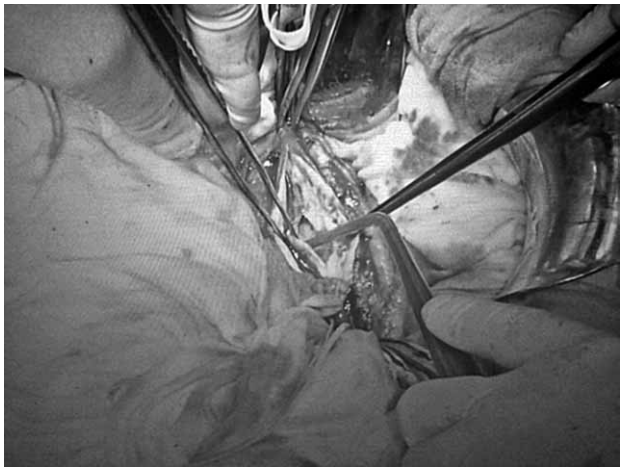

Fig. 2. Intraoperative findings showing a site of dissection.

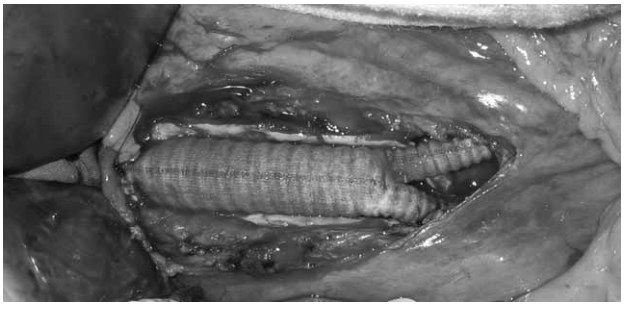

Fig. 3. Aortibiiliacal graft.

Conclusion

Acute dissection of the normal, non aneurysmatic dilated infrarenal abdominal aorta with presenting ischemic symptoms is rare finding and emergency surgical or endovascular repair is mandatory under these circumstances[2–8]. Presented case is interesting because up to relevant literature there is no report that included such a young patient without trauma and aneurysm of the abdominal aorta, with no hypertension history and other risk factors for abdominal aortic dissection, except cigarette smoking.

Usually dissection of the abdominal aorta is diagnosed spontaneously during CT examination of the abdomen for other reasons and asymptomatic cases do not require any than conservative treatment. There are only few reports in literature about this condition that are small studies and some sporadic case reports. In cases presented with ischemic symptoms surgery or endovascular treatment is mandatory. According to literature there are no differences in outcome in both options. Presented case is rare according to age of patient because mean age is at the fifth to sixth decade of life and with history of the arterial hypertension. Symptoms comprise abdominal pain, or pain in lower back and groin, symptoms that includes transient neuropathy of the peripheral localization up to paraplegia and ischemic symptoms of the lower extremities[2,10,11]. Usually dissection begins between renal and inferior mesenteric artery with rare distal point extending in iliac arteries and very often is associated with concomitant aortic aneurysm. MSCT angiography provides information of the site of the intimal tear and visceral perfusion so it is the most reliable diagnostic method.

Asymptomatic patients with normal diameter of the aorta are treated conservatively. Operative intervention includes endovascular or open surgery in patients with dissection and concomitant aneurismatic disease of the aorta, or in patient with ischemic symptoms in normal aorta.

In conclusion, this condition in symptomatic patient is very serious and urgent treatment is required. In all patient with unclear abdominal or lower back pain, or in patient with astasia, dissection of the abdominal aorta has to be encountered and excluded from diagnosis. Prompt diagnosis and treatment should avoid complications that could range from lethal to serious morbidity of patients.

REFERENCES

1. DEBAKEY ME, MCCOLLUM CH, CRAWFORD ES, MORRIS GC JR, HOWELL J, NOON GP, LAWRIE G, Surgery, 92 (1982) 1118. — 2. MANTELAS M, ANTONITSIS P, KAITZIS D, HATZIBALOGLOU A, MOROS I, Interact Cardiovasc Thorac Surg, 8 (2009) 398. — 3. JONKER FH, SCHLÖSSER FJ, MOLL FL, MUHS BE, J Endovasc Ther, 16 (2009) 71. — 4. HIRST A, JOHNS V, KIME W, Medicine, 37 (1958) 217. — 5. CRAWFORD ES, CRAWFORD JL, Aortic dissection and dissecting aortic aneurysm. In: Diseases of the aorta. (Baltimore, Williams & Wilkins, 1984). — 6. FARBER A, WAGNER WH, COSSMAN DV, COHEN JL, WALSH DB, FILLINGER MF, CRONENWETT JL, LAUTERBACH SR, LEVIN PM, J Vasc Surg, 36 (2002) 205. — 7. TRIMARCHI S, TSAI T, EAGLE KA, ISSELBACHER EM, FROEHLICH J, COOPER JV, RAMPOLDI V, UPCHURCH GR JR, J Vasc Surg, 46 (2007) 913. — 8. BELOV IUV, STEPANENKO AB, GENS AP, ZVERKHANOVSKAIA TN, Khirurgiia, 52 (2004) 52. — 9. STIERLI P, HUBER GF, MARTY R, EUGSTER T, GÜRKE L, Chirurg, 72 (2001) 940. — 10. HÖLPER P, HYHLIK-DÜRR A, KOTELIS D, VON TENGG-KOBLIGK H, BÖCKLER D, Vasa, 38 (2009) 254. — 11. TELLI A, RUCHAN AKAR A, OZCINAR E, KAYA B, J Vasc Nurs, 25 (2007) 29. — 12. TOLVA VS, BERTONI GB, TRIMARCHI S, GRASSI V, RAMPOLDI V, Minerva Chir, 64 (2009) 101.

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IZOLIRANA SPONTANA DISEKCIJA ABDOMINALNE AORTE

SAŽETAK

Izolirana, spontana disekcija abdominalne aorte je vrlo rijedak entitet, te je dosad opisano samo nekoliko slučajeva u literaturi. 42-godišnji muškarac primljen je u bolnicu s blagom bolnošću donjeg abdomena i donjeg dijela leđa, a započela je sedam dana pred prijem zajedno s iznenadnom pojavom ishemijskih simptoma lijeve noge (ishemijski ulkus područja lista lijeve potkoljenice, gangrena palca i bljedilo lijevog stopala). Bolesnik je negirao traumu, nije imao arterijsku hipertenziju, bio je aktivni pušač cigareta. Višeslojnom kompjuteriziranom tomografija i digitalna subtrakcijska angiografija pokazale su disekciju abdominalne aorte ispod polazišta donje mezenterične arterije sa širenjem u lijevu zajedničku ilijačnu arteriju, bez znakova aneurizmatske dilatacije abdominalne aorte. Bolesnik je podvrgnut hitnom operacijskom zahvatu, te je učinjeno aortobilijakalno premoštenje, uz amputaciju palca lijeve noge i nekrektomiju područja ulkusa lijeve potkoljenice. Postoperacijsko praćenje i lokalni vaskularni status bili su zadovoljavajući. Premda rijedak entitet, izolirana disekcija abdominalne aorte dolazi u otprilike 2–4% svih disekcija aorte. Terapija uključuje endovaskularno ili kirurško liječenje i konzervativni tretman.