

ACUTE ABDOMINAL AORTIC TRANSECTION STARTING WITH PARAPLEGIC SYMPTOMS

Acute aortic transection may be seen after a traumatic event and it has fatal progression. Unfortunately, in some cases; a surgical approaching time could not be found because of abandon bleeding into the peritoneal cavity or retroperitoneal area. 54 year a man who has been taking antihypertensive treatment suddenly suffered a paraplegic event in both lower extremity after coughing. Computed tomography and ultrasonography revealed the total aortic occlusion 2 cm under renal arteries and aorto-bifemoral bypass was performed. The case will be discussed under literature regarding its interesting symptoms and surgical approach.

Key words: *Transection, paraplegy, abdominal aorta*

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INTRODUCTION

Distal blood flow is impaired during acute aortic transection, which generally occurs in a sudden manner after a trauma. Later on ischemic symptoms might develop quickly (1). Even though spontaneous acute aortic transection has not been reported in the literature so far, it might occur theoretically for the cases in whom the calcific atheromatous plaque invades to the medial layer of the aorta, and with the sudden rise in blood pressure, this plaque may rupture causing acute transection without aortic dissection. We report a case of abdominal aortic transection, which manifests with ischemic symptoms of lower extremity and paraplegia.

CASE REPORT

54 years old hypertensive male had admitted with sudden loss of motor function in both his lower extremities. He complained sudden backpain and loss of motor function in both lower extremity after a severe coughing episode, which was occurred 12 hours ago. On his physical examination, arterial blood pressure was 160/90mmHg and pulse rate was 96/min. The patient was paraplegic and the distal pulses of both lower extremities were non palpable. Hemoglobin, hematocrit, and leucocyte were 15.7 gr/dl, 43.7%, 24.800/mm³, respectively. Blood chemistry showed, Urea: 55 mg/dl, Creatinine: 1.7 mg/dl, AST: 435 U/L

ALT: 112 U/L , Glucose: 259mg/dl. Computed tomography (CT) including the entire spinal cord was ordered by neurologists. The CT scan showed an occlusion at the distal portion of the abdominal aorta, and the aortic lumen was filled with thrombus (Figure 1). Abdominal doppler ultrasound detected no flow at 2 cm below the renal arteries.

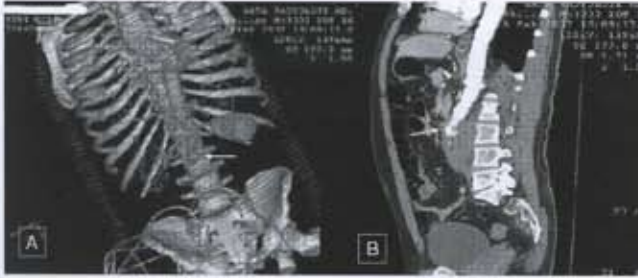


Figure-1: Occlusion at the distal portion of the abdominal aorta, (A. Anterior aspect, B. Lateral aspect), by CT scan

The patient was transported to cardiovascular surgery unit and at that time the signs of acute ischemia in his lower limbs were apparent. No tenderness and distention were noted in his abdomen. Bedside transthoracic echocardiogram was performed and no signs were noted supporting an ascending aortic dissection.

The patient was transported to the operating room and abdomen was explored with vertical midline incision above and below the umbilicus. No hematoma was seen in retroperitoneal area but mild hematoma was noted over the iliopsoas muscle originating from right side of the aorta. Aorta, below the renal arteries, and common iliac arteries were secured with tapes. Cross clamp was applied distally to the renal arteries at the abdominal aorta and aorta was incised longitudinally. On exploration, it was seen that aorta was filled with fresh thrombus. After removing the thrombus, a transverse, full thickness tear at the posterolateral side of aorta was visible. It was noted that the bleeding was sequestered and limited by psoas muscle. Surprisingly, there was no sign of dissection on the aorta extending proximally or distally. End to side anastomosis was performed from aorta to both femoral arteries

with a 16/ 8 mm Dacron Y graft and inferior mesenteric artery was anastomosed to the graft. Operation was completed without any complication.

On postoperative first day the patient had diarrhea. Stool examination for occult blood revealed a positive result. Consultations by general surgery and gastroenterology departments were taken, conservative therapy and close follow up for signs of intestinal ischemia were recommended. Loss of motor function of lower limbs began to recover gradually after post operative first day. EMG test at post operative day 10 revealed no sign of denervation. Diarrhea lasted till post operative day 12 and afterwards his stool examination revealed no occult blood. Histopathologic examination of the aorta at the level of rupture revealed signs of degeneration and calcification extending to medial layer of the aorta. The patient was discharged on postoperative 17th day.

DISCUSSION

Acute aortic transection is generally seen at the isthmic part of thoracic aorta after blunt traumas towards to the chest. Mortality rate is 85% in patients who do not operated emergently. But mortality rate is 30% in patients who operated emergently. Overall rate of paraplegia for these patients is reported to be 25% (1). Spontaneous transection of the abdominal aorta has not been reported so far but, traumatic transection of abdominal aorta might occur due to penetrating injuries towards the abdomen (2). Abdominal aortic aneurysms and aortic dissection might also cause spontaneous rupture. Mortality rate for aortic rupture is 90% without surgical intervention and 40% with surgical intervention in these cases.

In acute aortic transection, circulatory collapse due to bleeding from the transected segment, thrombosis lumbar arteries and thrombosis of the distal aorta might cause distal ischemic symptoms and paraplegia. Without urgent surgical intervention, the mortality rate is high in these

patients (2-4). In our case, clinical sign of aortic transection was paraplegia which was occurred after a severe coughing episode. The interesting point was that there was no massive bleeding into abdominal cavity and aortic lumen obstructed with small amount of bleeding into the psoas muscle. We think that a rupture in an atherosclerotic plaque at the aortic wall after a severe coughing episode might have caused spontaneous aortic transection in this patient who was receiving medical treatment for essential hypertension. Eventhough the pathogenesis of paraplegia is not completely understood by us, we think that it might have occurred because of sudden cessation of blood flow to lower extremities. The dramatic recovery in motor function after the surgery supports this possibility. There are some reported cases of paraplegia after aortic transection in the literature at which improvement in motor function is noted after reimplantation of lumbar arteries to the graft during the operation. In our case we did not use such a technique. Just one lumbar artery was noticed at surgical area and it was ligated. we observed the recovery of motor functions at lower extremities. But we think that reimplantation of lumbar arteries might be beneficial in the treatment of paraplegia after aortic transection (5). Acute aortic transection may cause of intestinal ischemia. During the surgery we did not see any ischemic findings on the both intestine and bowels. But we reimplanted the inferior mesenteric artery to the graft. Unfortunately ischemic intestinal clinical findings were seen after the surgery. These findings were disappeared in 12 days.

Dissection might occur due to a rupture in an atherosclerotic plaque especially in patients with hypertension. In our case, there was no sign of aortic dissection extending either proximally or distally on preoperative radiologic work up and intraoperative exploration. We suggest that, in patients with acute paraplegia applying to emergency department, it will be significant to keep the possibility of aortic transection in mind.

As a result, theoretically, if an atherosclerotic plaque has extended into the medial layer of the

aorta in a calcific aortic wall, sudden changes in blood pressure might cause aortic transection. And at those patients, paraplegia may develop due to cessation of distal blood flow. Lumbar arteries should be investigated to resolve the paraplegia. In the post operative period, even if the intestinal view is observed as in normal range, patients should be closely followed up for signs of intestinal ischemia.

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