

## Acute Limb Ischemia Secondary to a Severely Obstructed J-Pouch: Report of a Case.

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# Acute Limb Ischemia Secondary to a Severely Obstructed J-Pouch: Report of a Case.

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## Abstract

**Background:** Acute lower extremity ischemia secondary to pouch obstruction has not been previously reported. Herein, we report the case of an elderly man who was referred to our hospital with an acutely ischemic left lower extremity with sensory and motor compromise.

**Methods:** Method used was retrospective chart review of a case and a review of the literature.

**Results:** Embolectomy was attempted but failed to restore flow. A subsequent fem-fem bypass and fasciotomies were performed with salvage of the limb. Postoperative imaging demonstrated intra-pelvic compression of the left iliac system by an obstructed J-pouch significantly compromising flow. Following decompression of the pouch by defunctioning ileostomy the fem-fem occluded and normal flow resumed in the left iliac system.

**Conclusions:** Pouch obstruction is a rare cause of extrinsic arterial compression resulting in acute limb ischemia.

**KEYWORDS:** acute limb ischemia, obstructed ileal pouch, J-pouch

## **Introduction**

Acute ischemia of the limb is a common vascular emergency. Typically, acute ischemia is embolic or thrombotic in nature. Of embolic occlusions, the majority (80-90%) originate in the heart with 60-70% of these having underlying myocardial disease such as an MI or valvular disease.<sup>1</sup> Other common causes of an acute ischemic limb include aneurysms, arterial plaque rupture related to atherosclerosis and low flow states such as in CHF.

Another distinctly rare cause of acute limb ischemia are those cases arising from compressive phenomena. Some causes of compressive ischemia are well described such as thoracic outlet syndrome, arcuate ligament syndrome or popliteal artery entrapment syndrome.<sup>4</sup> Of these, only popliteal artery entrapment syndrome, which is caused by anomalous musculotendinous structures causing compression of the popliteal artery and ischemia, involves the lower extremity. However, it is also possible that an intra-abdominal or intra-pelvic process can exert external compression of the flow to one or both legs. Though there are rare case reports of compressive causes of acute lower limb ischemia there is no report of acute lower limb ischemia by pouch obstruction in the English-language literature to our knowledge.<sup>2,3</sup>

## **Case Details**

A 62 year old man presented to the emergency department of our hospital after emergency transfer from an outside facility. He had a complex medical history which included hyperthyroidism, osteoporosis and a prior total colectomy for FAP with the creation of a J-pouch at age 36. Though it was not known to the transferring physicians or the receiving vascular team, he had a known stricture at his prior ileoanal anastomosis and had undergone previous dilations. He had initially presented to the outside hospital

with symptoms of acute ischemia in his left leg, including acute onset pain and numbness. He was also complaining of weakness of the affected limb with particular weakness in dorsiflexion of the foot.

Physical exam revealed pallor and absence of pulses in the left leg, including an absent pulse in the left groin. He had significantly reduced power and sensation. His left lower extremity was mottled and poikilothermic. His prior abdominal scar and a distended, nontended abdomen with what was thought to be a pelvic mass were noted on exam. His labs were unremarkable. Hence, he was started on an intravenous heparin drip before emergent transfer to the operating room. The operative plan was for a femoral embolectomy and 4-compartment fasciotomy. At the time of presentation he was not in atrial fibrillation nor was there evidence of MI by EKG.

In the operating room, the left groin was prepared, draped and opened as usual. His femoral artery was clearly identified and had no pulse. An arteriotomy was performed and a size 5 Fogarty catheter was passed proximally a number of times into the aorta without retrieval of clot or restoration of inflow. There was a tactile impression of compression of the external iliac artery when performing the embolectomy and it appeared that there was a mechanical obstruction of the mid-external iliac artery. Though its etiology at this point was unclear, with the prior history of FAP malignancy was concerning. Therefore, we elected to construct a fem-fem in order to bypass the proximal mechanical obstruction in order to salvage the leg. After inflow had been restored to the left leg, 4 compartment fasciotomy was performed and the patient was transferred in stable condition to the PACU.

A CT scan was performed in the morning the first postoperative day (fig 1-4). It revealed a massively distended J-pouch (maximum diameter 16.9cm) that was compressing the left external iliac. As such, a rectal tube was placed with the production of a large amount of air and liquid stool (~ 1 litre), with good subsequent outputs. His abdominal distention began to subside. However on postoperative day 2, his abdominal distention worsened, he developed tachycardia and worsening abdominal pain. A repeat CT showed pneumatosis in the wall of the J-pouch, and portal venous gas, at this point it was clear that the wall of the pouch had become necrotic secondary to prolonged obstruction and dilation. As such, he was taken back to the operating room for laparotomy, lysis of adhesions and creation of a defunctioning loop ileostomy. He tolerated this well and the rest of his postop course was unremarkable. Subsequent follow up CT scan revealed the left external iliac artery is no longer occluded and his fem-fem crossover is thrombosed following the decompression of his J-pouch. Vascular studies revealed normalised flow in his left iliac system, and CT reconstructions of the artery showed restored vascular flow (fig. 3).

### **Discussion**

Although the acutely ischemic limb is a common vascular emergency, it is distinctly rare to encounter acute ischemia resulting from external arterial compression of an artery. Typical causes include embolism related to atrial fibrillation, mural thromboses related to prior MI, acute thrombosis in the setting of previously existing PVD or embolism. Aneurysms of the aorta or its branches can thrombose or embolize clot causing acute ischemia.<sup>1</sup> Though one case report exists concerning a small bowel obstruction resulting from a congenital abnormality that subsequently resulted in acute aortic occlusion, to our

knowledge no report of acute limb ischemia secondary to intra-abdominal or intra-pelvic compression exists.<sup>2</sup> Extrinsic compression of the outflow to the upper limb has been described in one case secondary to a massive substernal goiter and is a known sequela of thoracic outlet syndrome.<sup>3,5</sup>

Typically, published reviews do not list compression as a possible cause of acute limb ischemia. However, any cause of increased intra-abdominal pressure could in theory cause acute ischemia, such as bowel obstruction or abdominal compartment syndrome. The usual pathophysiology involves abdominal distention rather than compression of the structures against the spine (as in the case of aortic occlusion) or against the pelvic sidewall (as in our case), and in fact most common causes of increased intra-abdominal pressure do not result in vascular outflow obstruction. The relatively rare finding of vascular compression in these cases may simply be a function of the fact that intra-abdominal pressures are rarely elevated high enough to overcome systemic arterial pressures in the aorta and the major arterial branches.

Herein we describe the case of a man with a previously constructed J-pouch with a known ileoanal stricture resulting in obstruction and massive dilation of the pouch. The pouch became so distended that it resulted in iliac compression and acute ischemia of the left limb. Initially, our treatment consisted of embolectomy, however when a compressive cause of ischemia became evident we performed a fem-fem crossover for limb salvage. After decompression of the pouch and subsequent defunctioning ileostomy, the fem-fem bypass occluded as expected with a return of flow through the native left iliac. This case demonstrates that compressive causes, though rare, should be considered as part of the differential of acute limb ischemia.

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**Legend for Figures:**

Fig. 1 - CT Images showing compression of the left iliac against the left psoas muscle and the pelvic sidewall. Arrow demonstrates compressed iliac artery.

Fig. 2 - High magnification view of CT angiogram. The distended J-pouch can be clearly seen compressing the iliac on the left, demonstrated by the absence of contrast within the left iliac.

Fig. 3 - CTA showing arterial compression and normalized flow after decompression of the pouch. Left – arrow shows arterial compression. Right – Arrow shows restoration of normal arterial caliber after decompression of pouch.

Fig. 4 – Scout film showing distended pouch

**Fig 1.**



**Fig. 2**



**Fig. 3**



**Fig. 4**

