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Case Report

SUCCESSFUL SURGICAL MANAGEMENT AND SURVIVAL OF ILIAC ARTERY ANEURYSM WITH ILIO-RECTAL FISTULA PRESENTING WITH MASSIVE LOWER GASTROINTESTINAL BLEEDING

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ABSTRACT

The existence of a common iliac and internal iliac artery aneurysm is rare. The rupture of the internal iliac artery aneurysm into the rectum from the formation of ilio-rectal fistula causing torrential bleed per rectum is very rare with high mortality and demands immediate intervention for survival. Lower gastrointestinal Bleeding (LGIB) in the tropics is most likely to be a young individual commonly bleeding from nonspecific or enteric ulcers. In contrast the western patient with massive LGIB is likely to be an elderly individual bleeding from diverticulosis or angiodysplasia.A 65 year old patient who was been investigated for intermittent rectal bleeding had a torrential and exsanguinating rectal bleeding during examination under anesthesia in theatre. He had to be resuscitated and further invested with a CT Angiography which showed an aneurysm of the right common and internal iliac arteries fistulating into the rectum. He was stabilized and underwent an uneventful aneurysmectomy and femoro-femoral Goretex bypass. He has been well two years after surgery with no sequelae.

INTRODUCTION

Case Report

We present a 65 year man who is a known hypertensive but poorly managed at a peripheral hospital who had an exsanguinating rectal bleeding during examination under anaesthesia in theatre for a rectal bleeding complaint. He had no prior history of abdominal trauma or previous abdominal surgery and he was not on any anticoagulant. So examination was aborted after securing haemostasis with rectal packs. He was then stabilized with intravenous fluids and serial blood transfusions with packed red cells with concomitant management of his hypertension. Reevaluation by CT Angiography after 72hours of stabilization revealed a right common iliac and internal iliac artery aneurysm with ilio-rectal fistula which was provoked to the massive bleeding during the examination under anasethesia. He was subsequently prepared for surgery. Under aseptic conditions and general anesthesia with endotracheal tube, an intraperitoneal approach was used entering the abdomen via a midline laparotomy. The right common iliac and the internal iliac artery aneurysms were approximately 5cm and 3 cm in greatest diameter respectively after opening the retroperitoneum. A bilateral longitudinalgroin incision was made starting with the left to dissect and isolate the common femoral arteries on tapes. Then 5000IU Heparin was given and a femoro-femoral goretex bypass via the suprapubic subcutaneous tunnel using size 6mm Goretex graft was performed with prolene 5/0.The iliac aneurysms were resected and the proximal and distal stumps were repaired with prolene 5/0 in a double-layered simple continuous suturing. Abdomen was then irrigated with 500mls of warm Normal Saline, mopped cleaned and closed up in layers with Nylon 2 for fascia and Vicryl 3/0 subcuticular skin closure. He had an uneventful postoperative period. He was given prophylactic

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anticoagulation with Clexane (Enoxaparin) 40mg daily for 5 days and was discharged on the 10th postoperative day. Repeat CT Angiography after 3 monthsshowed efficient continuity of the femoro-femoral bypass flow with no residual leaks.

Two years after surgery, patient is doing well with no sequelae and no episode of lower gastrointestinal bleeding or any bladder or urologic complications.

Figure 1 CT Angiography showing the right common and the internal iliac artery aneurysms

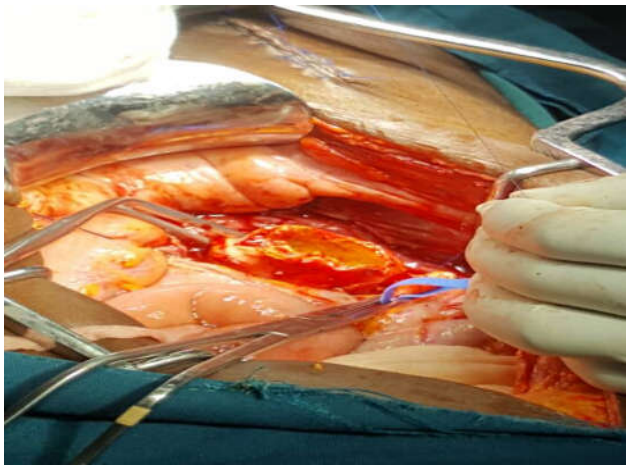

Figure 2 The Proximal stump of the resected common and internal iliac aneurysm

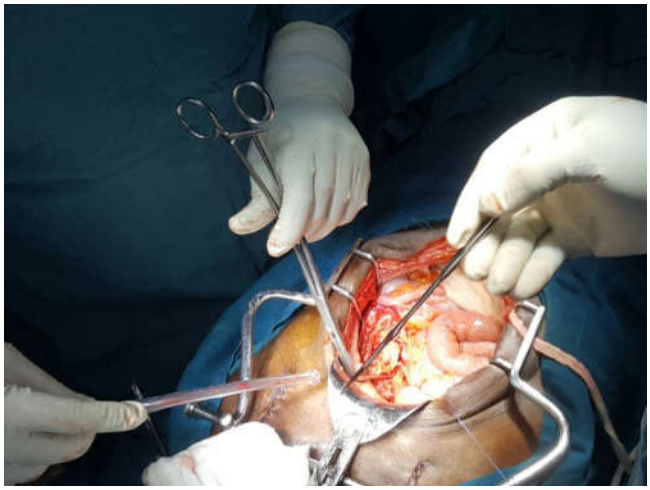

Figure 3 Repaired proximal common iliac artery and the femoro-femoral goretex graft bypass

Figure 4 Post-operative CT Angiography showing the resected aneurysm with no contrast filling of the common and proximal right iliac arteries seen. Branches of the right internal iliac artery are also filled with contrast likely due to collateral vessel supply. No active contrast extravasation seen

Figure 5 3 months after surgery with healed wound.

DISCUSSION

Aneurysm of the iliac artery may be grouped into those related to abdominal aortic aneurysms (seen in 10-20% of cases) and the isolated aneurysms of the iliac artery [1]. Isolated iliac artery aneurysms are a very rare phenomenon with multiple literatures reporting that it accounts for 0.3-2% of all intra-abdominal aneurysms [1–5]. Most common site of occurrence is the common iliac artery followed by the internal iliac artery with the external iliac artery being rarely implicated [1]. Our patient falls into this category. Isolated internal iliac artery aneurysms have been reported to have an incidence of 0.4% by Dix *et al*[6]. It is reported to have a male preponderance with a ratio of 7:1 and a predilection for the elderly beyond the 7th decade of life [1,5,7].This correlates well with our patient who was an elderly man of 65 years.

Aetiologies identified to be associated with iliac artery aneurysm include atherosclerosis, mycotic infections, intraoperative or trauma-related injuries, collagen vascular diseases and connective tissue diseases such as Marfan syndrome and Ehlers-Danlos syndrome [2–6]. Pseudoaneurysms have also been demonstrated to occur due to erosions caused by malignancies [4]. Though histopathology was not lost to follow-up, we think our patient may have atherosclerosis as the risk of

his aneurysms especially when he was hypertensive as well which was poorly controlled.

The natural history of iliac artery aneurysms is reported to be one of progressive increase in size with concomitant increase in risk of rupture [1,6]. Pacewski and colleagues demonstrated that lesions less than 3cm in diameter have a growth rate of 1.1mm/year while aneurysms between 3-5cm in diameter grow at a rate of 2.6mm/year. Growth rate of the aneurysm was found to be the major determinant of possibility of rupture with an average diameter of rupture being 6-6.8cm [1]. Rupture of the aneurysm has been reported in 40% of cases of isolated iliac artery aneurysm with over 50% mortality rate according to Arthur and colleagues [4,5].

Clinical Presentation

Internal iliac artery aneurysms are mostly asymptomatic due to their deep pelvic locations and as such mostly seen as incidental findings following imaging for other indications [3,5,6]. Their intimate relations to other major pelvic structures also explain the myriad of clinical presentations that accompany symptomatic cases. Aneurysm of considerable size may cause compression, form fistulae or rupture into adjacent structures [3,5,7]. They may present as gastrointestinal (due to proximity of large bowel), neurologic (close proximity of lumbar plexus) or urologic (close relation to ureters) diseases [7]. Iijima and colleagues reported of a case of common iliac artery aneurysm complicated by an ilio-iliac arteriovenous fistula [8]. Also reported in literature is the occurrence of fistulation or rupture of the aneurysm into the adjacent colon or rectum thereby presenting as massive bleeding per rectum [5,9,10].This was the presentation of our patient. A review by Dix *et al* reported an incidence of massive per rectal bleeding secondary to aneurysmal rupture or fistulation to be about 6%. Other documented presentations include impaired sensation and motor function in the lower limbs or back pain in the distribution of the lumbosacral plexus due to plexus compression. Ureteric compression may result in suprapubic pain and obstructive uropathy while hematuria may result from aneurysmal erosion into the ureter [5,7]. Also reported are cases of lower limb oedema and deep vein thrombosis from compression of the iliac vein [6,7]. A rare case of large bowel obstruction from a ruptured internal iliac aneurysm has also been reported [7].

Hemodynamic instability in a patient with an iliac artery aneurysm is highly suggestive of an aneurysmal rupture [5]. Digital rectal or vaginal examinations have been found to be more useful in palpating iliac artery aneurysms as compared to abdominal examinations. They are usually palpated as a pulsatile mass as was documented by a case report by Elkouri *et al*[7]. Cases of massive rectal bleeding show as hematoma formation in the rectum or perianal region [7,9]. This was the exact finding according to the general surgeon who examined the patient under anaesthesia.

Diagnosis

With the advancement in radiological investigations, the use of computed tomography with contrast has become well-established in the diagnosis of intra-abdominal aneurysms. It has replaced the use of ancient procedures such as aortography and femoral angiography. CT angiography helps to delineate the location, size and relations with the adjacent structures for planning of repair. The use of magnetic resonance angiography produces even better image quality for planning of repair [6].
In cases of rectal bleeding, colonoscopy also helps in identifying the source of the bleed as has been employed and documented in multiple case reports [4,5,9]. However, this is only important if patient is hemodynamically stable. Colonoscopy may demonstrate massive bleeding with hematoma in the recto-anal canal [9] or a pulsatile mass in the rectal wall [5].

Management

Even though there is no evidence to back it, it is a well-accepted recommendation that internal iliac artery aneurysms of diameter greater than 3cm should be treated [5,11]. The options for management of iliac artery aneurysms are open surgery and endovascular repair [12,13]. Despite the fact that endovascular repair is less invasive, open surgery remains the gold standard in management [13].

Open surgical options for repair include proximal and/or distal ligation or aneurysmectomy with or without extra-anatomic bypass such as aorto-iliac/femoral, femoro-femoral or axillo-femoral bypass to re-establish distal blood flow [6].This was the option which chosen for our patient. Ligation involves both proximal and distal ligation of the aneurysm. Aneurysmectomy used to be employed in earlier treatments and it involved complete resection of the aneurysm with interposition grafting [3]. However, it is not recommended due to risk of damage to adjacent structures [6]. A survey by Dix and colleagues demonstrated a 26.7% mortality among patients who underwent aneurysmectomy [6].

Endovascular repair procedures are currently gaining more popularity and increasing being demonstrated to be effective and safe. Options available and documented in literature include endoluminal stenting, coil embolization and endoaneurysmorrhaphy [14]. A retrospective survey by Patel *et al* comparing both endovascular and open repair options in the management of internal iliac aneurysms demonstrated that endovascular repair was beneficial due to reduced risk of damage to surrounding structure from dissection and reduced need for transfusion as compared to open repair [3].

Perioperative mortality in emergency surgical repair has been documented to be high with Khanna *et al* quoting rate up to 50% while elective repairs are associated with significantly reduced rates of 7-11% [14].

CONCLUSION

Rupture of a common iliac-internal iliac artery aneurysm with ilio-rectal fistula into the rectum causing torrential bleed per rectum is very rare and catastrophic but immediate resuscitation and surgical intervention saves.

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Conflict of Interest

None declared

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