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Rupture of middle colic artery aneurysm and its management: A case report

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ABSTRACT

Introduction: Incidence of visceral artery aneurysm is rare and diagnosis of their complications remains a challenge. We report a rare case of ruptured aneurysm arising from middle colic artery which was successfully managed surgically. Case Report: A 54-year-old male presented with shock and low hemoglobin and had abdominal distension on examination. He also had past history of stroke. On evaluation he was found to have ruptured aneurysm from visceral artery with intraabdominal bleed. After resuscitation, emergency laparotomy was performed. Vascular control of ruptured aneurysm arising from left branch of middle colic artery was performed along with segmental colectomy. He had uncontrolled hypertension in the immediate postoperative period which was managed with antihypertensives, however, he recovered well. Conclusion: Rupture of a middle colic artery aneurysm is a rare cause of intraabdominal bleeding which can be successfully managed by angioembolisation or surgery depending upon the hemodynamics of the patient and the facilities available.

KEYWORDS

Middle colic artery aneurysm, Rupture, Hypertension, Intraabdominal bleed, Colonic resection

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INTRODUCTION

Aneurysms of the splanchnic arteries are rare with a reported incidence of 0.1-2% [1], and development of aneurysm complications carries a high mortality. Their rarity is further evident from the fact that they are often diagnosed as the cause of death only on post mortem examination. The splenic artery has been reported to be the most frequent site of a visceral aneurysm followed by hepatic artery and the superior mesenteric artery [2] as shown in Table 1.

Medial degeneration, arteriosclerosis, hypertension, systemic lupus erythematosus, mycotic infection and alpha-1-antitrypsin deficiency are the various causes for development of aneurysms described in literature [3]. Congenital abnormalities of the tunica media along with aforementioned factors results in the development of aneurysms. Traditionally referred to as abdominal apoplexy, rupture of a visceral artery aneurysm is rare. More recently idiopathic spontaneous intraabdominal hemorrhage has been described to include all these causes of intraabdominal bleeding which are not the results of trauma, malignancy or diseases like pancreatitis [4].

CASE REPORT

A 54-year-old male patient presented to our emergency department with a sudden onset of generalized abdominal pain and dizziness. He had a past history of a cerebrovascular accident with right side hemiparesis six years previously and was on irregular treatment for hypertension.

On examination he was found to be pale and had a pulse rate of 114/min and BP of 100/60 mmHg. His abdomen was mildly distended with slight upper abdominal tenderness. Ultrasound of the abdomen showed free fluid with dependent debris and fine septation suggesting a haemorrhagic collection and contrast enhanced computerized tomography (CECT) showed an aneurysm with active bleeding from one of the visceral arteries (Figure 1) with a haemoperitoneum. He was also found to have fresh thrombosis of the superior mesenteric vein extending into the portal vein (Figure 2). His blood investigations showed a haemoglobin of 4 gm/dl with a white cell count of 13.3x10^3/mm^3 and deranged renal function tests (blood urea 192 mg/dl and creatinine of 2.4 mg/dl). His liver function tests, coagulation profile and platelets were within normal limits.

After resuscitation and administration of antibiotics, he was taken up for an urgent operation with simultaneous blood transfusion. During laparotomy, there was approximately 2.5 litres of blood along with clots in the peritoneal cavity (Figure 3) and active bleeding from an aneurysm of the left branch of the middle colic artery measuring about 3x2 cm (Figures 4, 5). The left branch of the middle colic artery was ligated and segmental colectomy was performed with a side to side colocolic anastomosis (Figure 6). The histopathology revealed a ruptured aneurysm of the middle colic artery with clot formation and no obvious specific aetiological factors.

In the post-operative period, patient’s renal function improved and normalised in about two weeks. He was started on anticoagulants and on repeat CT angiography after six weeks there was recanalisation of his superior mesenteric vein. He was also started on antihypertensives and gradually the blood pressure was controlled. After eight months of follow up he is asymptomatic and doing well.
DISCUSSION

The incidence of colonic artery aneurysm is so rare that it constitutes 0.28% of all superior mesenteric artery aneurysms. Abdominal pain is the most common presenting symptom which is due to an expanding hematoma causing pressure symptoms on the adjacent organs or colicky pain secondary to intestinal ischaemia or peritonitis. Some patients present with haematochezia or are in shock. The rarity of this complication is emphasized from the fact that there have been only 36 cases of rupture of middle colic artery aneurysms have been previously reported [5-7].

Our patient had uncontrolled hypertension which is one of the commonest causes described along with arteriosclerosis for development of such aneurysms [4]. Angiography is the mainstay for not only establishing the diagnosis, assessing the collateral circulation and locating aneurysms elsewhere but also important for controlling bleeding by angioembolisation. There is a need for prophylactic management of an asymptomatic aneurysm as it carries a very high mortality (upto 20%) [8]. Transarterial embolisation is a safe and less invasive approach than surgery but is associated with complications like intestinal necrosis, perforation or rupture and is not available everywhere. However, in a haemodynamically unstable patient or when facilities for angiographic embolisation are not available these patients require urgent laparotomy and control of bleeding as was done in our patient. Surgical management includes laparotomy with vascular ligation or aneurysmal resection and bowel resection if the vascularity is questionable (Figure 7).

CONCLUSION

Rupture of a middle colic artery aneurysm is a rare cause of intraabdominal bleeding and which can be successfully managed by angioembolisation or surgery depending upon the haemodynamics of the patient and the facilities available.

REFERENCES


Table 1: Incidence of visceral artery aneurysms

<table>
<thead>
<tr>
<th>Name</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splenic</td>
<td>60%</td>
</tr>
<tr>
<td>Hepatic</td>
<td>20%</td>
</tr>
<tr>
<td>Superior mesenteric artery &amp; its branches</td>
<td>1-5%</td>
</tr>
<tr>
<td>Coeliac trunk</td>
<td>5.5%</td>
</tr>
<tr>
<td>Jejunal, ileal &amp; colonic arteries</td>
<td>3%</td>
</tr>
</tbody>
</table>

Figure 1: CECT showing aneurysm from visceral artery with hemoperitoneum
Figure 2: CECT showing SMV thrombosis.

Figure 3: Hemoperitoneum.
Figure 4: Aneurysm arising from left branch of middle colic artery.

Figure 5: Ruptured aneurysm with active bleed.
Figure 6: Vascular ligation of left colic artery with segmental colectomy being performed.

Figure 7: Management of visceral artery aneurysm.