Anorectal pseudoaneurysm after stapled anopexy leading to recurrent massive bleeding per rectum: a case report

N Shahzad*, H Zafar, A Pardhan, R Tufail

Abstract

Introduction
Stapled anopexy is a modern technique to treat symptomatic grade 3 and grade 4 internal haemorrhoids. It has advantage of early recovery, less pain, and short procedure time compared to conventional haemorrhoidectomy. Frequency of post anopexy bleeding per rectum requiring reoperation is 1.5% to 3.3% and staple line is identified to be the most common site. To date no case has been reported describing arterial pseudoaneurysm as the cause of recurrent rectal bleeding after stapled anopexy.

Case Report
We present a case of a 47-year-old Asian male patient, who underwent stapled anopexy and had recurrent profuse bleeding per rectum in the two weeks following surgery. Workup including colonoscopy and computerised tomographic angiography showed arterial pseudoaneurysm with partial thrombosis in the perianal area. Non-invasive management with close observation was successful. Staple injury to the vessel wall during procedure was most likely the cause of pseudoaneurysm formation.

Conclusion
Bleeding of pseudoaneurysmal origin should be in differential diagnosis of the patients presenting with persistent bleeding per rectum after stapled anopexy and meticulous techniques should be adopted during procedure. Invasive treatment options of arterial pseudoaneurysm can be reserved for cases where non-invasive management is not successful.

Case Report
We had a 47-year-old man with no previously known co-morbid conditions, who presented to us in the clinic with a history of on and off painless bleeding per rectum for one month. Associated history of mucosal prolapse upon straining at stools was also present. Pre-operative haemoglobin, platelet count, and coagulation profile was normal as shown in Table 1.

Proctoscopic examination under anaesthesia confirmed grade 3 internal haemorrhoids at 3, 7, and 11 o’clock positions. Stapled anopexy was performed using the PPH circular stapling device (Ethicon Endo-surgery, Cincinnati, USA) with 33 mm staples at 4 mm leg length. Purse string suture was taken using the prolene 3/0 stitch. Anal paraffin gauze was left in the anal canal for six hours after the procedure. He was admitted to the hospital for observation and discharged home on the second post-operative day with instructions of good oral hydration, high fibre diet, and sitz baths.

The patient had persistent bleeding per rectum on the fourth post-operative day for which he was admitted and resuscitated. The examination was done under general anaesthesia, which revealed blood clots equivalent to about 1.5 litres of blood in the large intestine. No obvious bleeding was seen from the suture line. There was a non-bleeding small raw area of about 0.5 × 0.5 cm just above the suture line at the 1 o’clock position.

*Corresponding author
Email: drns01@hotmail.com
Aga Khan University Hospital, Karachi, Pakistan

Licensee OA Publishing London 2013. Creative Commons Attribution License (CC-BY)

Non-invasive management was successful with stable vital signs and haemoglobin trends.

The patient had another episode of persistent bleeding per rectum two days after discharge from hospital. He could not identify any factors responsible for these bleeding episodes. He was again resuscitated with fluids and blood products. Blood work up did not show any platelet or coagulation abnormality. Colonoscopy was done to evaluate the cause of bleeding, revealing a large pulsatile mass of about 1 cm in size, just above the dentate line at the 1 o’clock position as shown in Figure 1. Anopexy site did not show any active bleeding. The rest of the colon and rectal mucosa was unremarkable. Computed tomographic (CT) angiography was done to further evaluate the pulsatile mass. It showed an area of abnormal enhancement measuring 9 mm in the lower rectum at the 1 o’clock position, 2.2 cm from anal verge, surrounded by a slight hypo-dense area showing Hounsfield units of 160 on early arterial phase and 210 on portal venous phase. These findings were suggestive of a small pseudoaneurysm surrounded by thrombus formation as shown in Figure 2. As no further episodes of bleeding occurred, no intervention was done. The patient was discharged after two weeks of observation and haemoglobin monitoring with a plan of angiographic embolisation in case bleeding occurs again.

Follow-up in the clinic over the next three months did not show any further episodes of bleeding per rectum.

**Discussion**

Pseudoaneurysms are formed when disruption in all three layers of the arterial wall result in contained rupture with the perfused sac that communicates with the artery. It is a known complication of various surgical procedures, especially those requiring vascular access. Gastrointestinal pseudoaneurysms are notorious for recurrent bleeding. There are studies reporting recurrent bleeding per rectum due to anorectal pseudoaneurysm formed after penetrating trauma. Vascular pseudoaneurysm after stapled anopexy has not been reported to date. In our patient, formation of pseudoaneurysm was probably secondary to needle injury to a branch of the haemorrhoidal artery while taking a purse-string suture. Other possibilities could be entrapment of the branch of the vessel in the stapling device resulting in injury to its wall.

There is controversy in literature about the management of pseudoaneurysms due to their unpredictable course and variable response to embolisation in case bleeding occurs again.

Follow-up in the clinic over the next three months did not show any further episodes of bleeding per rectum.

**Discussion**

Pseudoaneurysms are formed when disruption in all three layers of the arterial wall result in contained rupture with the perfused sac that communicates with the artery. It is a known complication of various surgical procedures, especially those requiring vascular access. Gastrointestinal pseudoaneurysms are notorious for recurrent bleeding. There are studies reporting recurrent bleeding per rectum due to anorectal pseudoaneurysm formed after penetrating trauma. Vascular pseudoaneurysm after stapled anopexy has not been reported to date. In our patient, formation of pseudoaneurysm was probably secondary to needle injury to a branch of the haemorrhoidal artery while taking a purse-string suture. Other possibilities could be entrapment of the branch of the vessel in the stapling device resulting in injury to its wall.

There is controversy in literature about the management of pseudoaneurysms due to their unpredictable course and variable response to embolisation in case bleeding occurs again.

Follow-up in the clinic over the next three months did not show any further episodes of bleeding per rectum.

## Table 1: Laboratory work up before undergoing stapled anopexy

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Normal Range</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemoglobin</td>
<td>13.4</td>
<td>13.7 – 16.3</td>
<td>Gm/dl</td>
</tr>
<tr>
<td>Haematocrit</td>
<td>40.1</td>
<td>41.9 – 48.7</td>
<td>%</td>
</tr>
<tr>
<td>Platelet Count</td>
<td>215</td>
<td>150 – 400</td>
<td>X 10^9/L</td>
</tr>
<tr>
<td>PT*</td>
<td>16.6</td>
<td>9 – 14</td>
<td>Seconds</td>
</tr>
<tr>
<td>INR†</td>
<td>1.10</td>
<td></td>
<td>Ratio</td>
</tr>
<tr>
<td>aPTT‡</td>
<td>34.7</td>
<td>25.0 – 35.0</td>
<td>Seconds</td>
</tr>
</tbody>
</table>

*Prothrombin time
†International Normalised Ration
‡Activated Partial Thromboplastin Time

For information and consent, please refer to the Association for Medical Ethics (AME) ethical rules of disclosure.
Case report

• This complication can potentially be avoided by a meticulous technique while applying a purse-string suture, not to take too much of the deeper tissue.
• Knowledge of rectal wall anatomy while performing the procedure is the cornerstone to potentially avoid this complication.
• Intervention for anorectal arterial pseudoaneurysm can be avoided if non-invasive management with close monitoring is successful.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

References


Figure 2: Coronal view of CT angiograph. Arrow pointing towards hyperdense area surrounded by hypodense area in the wall of the anal canal suggestive of pseudoaneurysm with partial thrombosis.

to different treatment modalities. There is a lack of guidelines to define criteria for non-invasive management or any specific intervention. Intervention can be avoided if non-invasive management with close monitoring is successful.

Bleeding per rectum is the most common complication after stapled anopexy, accounting for up to 5.1% readmissions. In patients presenting with persistent bleeding per rectum after stapled anopexy, the first step is to examine them under anaesthesia to rule out staple line bleed. But in the case of haemorrhage leading to a significant drop in haemoglobin and destabilising vital signs, technetium 99 m-labelled red blood cell scan or angiography can locate the source of bleeding and management can be directed accordingly. Colonoscopy is done after stabilising the patient to evaluate other sources of bleeding per rectum.

Though conventional angiography is considered to be the reference standard to diagnose pseudoaneurysm, CT angiography has added benefits of defining anatomical relationships.

Conclusion

• Anorectal arterial pseudoaneurysm should be considered in differential diagnosis in cases of recurrent bleeding per rectum after stapled anopexy.

There is a lack of guidelines to define criteria for non-invasive management or any specific intervention. Intervention can be avoided if non-invasive management with close monitoring is successful.

Bleeding per rectum is the most common complication after stapled anopexy, accounting for up to 5.1% readmissions. In patients presenting with persistent bleeding per rectum after stapled anopexy, the first step is to examine them under anaesthesia to rule out staple line bleed. But in the case of haemorrhage leading to a significant drop in haemoglobin and destabilising vital signs, technetium 99 m-labelled red blood cell scan or angiography can locate the source of bleeding and management can be directed accordingly. Colonoscopy is done after stabilising the patient to evaluate other sources of bleeding per rectum.

Though conventional angiography is considered to be the reference standard to diagnose pseudoaneurysm, CT angiography has added benefits of defining anatomical relationships.

Conclusion

• Anorectal arterial pseudoaneurysm should be considered in differential diagnosis in cases of recurrent bleeding per rectum after stapled anopexy.

References


Figure 2: Coronal view of CT angiograph. Arrow pointing towards hyperdense area surrounded by hypodense area in the wall of the anal canal suggestive of pseudoaneurysm with partial thrombosis.