Online Case Report

Colocutaneous fistula complicating therapeutic mesenteric embolisation

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Percutaneous embolotherapy has now assumed an important role in the management of massive colonic haemorrhage. However, this therapeutic option is associated with a significant risk of irreversible segmental colonic ischaemia. We present a case where distal segmental ischaemia led to a colocutaneous fistula, a complication not reported so far in the literature.

Keywords: Colonic haemorrhage – Embolisation – Enterocutaneous fistula

Percutaneous mesenteric embolisation has replaced, in most instances, the endoscopic approach to massive lower gastrointestinal haemorrhage. However, it is associated with some degree of segmental ischaemia that can lead to infarction and, ultimately, result in fistulation should localised perforation occur. Despite this logical sequence of events, the latter has not been reported in the literature so far. Perhaps, because a great number of patients undergo surgery anyway prior to such complication, fewer will inevitably die from the initial insult.

Several factors may contribute to increased risk of re-bleeding,¹ including end-stage renal failure (ESRF) and medication. Such patients present some degree of immunosuppression that is usually responsible for the paucity of signs and symptoms of sepsis. In those cases where surgery is not advisable, interventional radiology may offer perhaps the best, and only, choice for survival.

Case report

A 66-year-old man with ESRF, ischaemic heart disease, hypertension and chronic obstructive pulmonary disease was admitted under the renal physicians with

deteriorating renal function and pulmonary oedema. There was a past history of anaemia and colonic bleeding for which he had undergone OGD and colonoscopy, both demonstrating no source of bleeding. On this admission, he suffered a massive bleed with a fall in haemoglobin to 5 g/dl, requiring 5 U of packed cells over 24 h.

The patient underwent a labelled red cell scan that demonstrated increased tracer uptake in the right colon. A mesenteric angiogram was then carried out, which showed the bleeding to be related to the ascending divisions of the ileocolic artery within an area of angiodysplasia (Fig. 1). Superselective embolisation of this segmental abnormality was carried out using a combined technique of microcoil and PVA/alcohol particles (Contour Embolization Particles 250–355 µm; Target Vasculab, CA, USA) delivered by microcatheter with good result (Fig. 2).

At 8-h post-embolisation, he developed vague abdominal pain that later localised to the right iliac fossa. This resolved and the patient improved clinically. On day 4 post-embolisation, abdominal examination revealed right iliac fossa fullness and ultrasound scan was normal. The patient continued to improve and was monitored both clinically and with a series of plain abdominal films (AXR). On day 12, his AXR showed a gas-filled cavity and

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Figure 1 Superselective catheterisation of ascending ileocolic arterial divisions demonstrating abnormal vessels, consistent with angiodysplasia with venous shunting.

a CT scan (Fig. 3) demonstrated a large air cavity adjacent to the caecum with no radiologically drainable collection. The patient continued to improve and was discharged well. He represented asymptotically 3 weeks later with a faeculant discharge from the umbilicus. A fistulogram confirmed a colocutaneous fistula (Fig. 4). In view of his co-morbid diseases, he was treated conservatively and discharged clinically well with a controlled low out-put (50 ml/day) fistula. However, he represented 3 weeks later with a new fistula in the right iliac fossa. On this occasion, his clinical condition deteriorated rapidly and he died from acute sepsis.

Discussion

Mesenteric angiography can provide very accurate localisation of colonic bleeding² as well as an opportunity for therapeutic embolisation, particularly if co-morbid disease makes surgery hazardous or non-recommendable, as in the case presented. This therapeutic procedure can either stop haemorrhage completely or slow the rate of bleeding such that adequate fluid resuscitation can be achieved prior to surgical resection.

However, this procedure will invariably cause some degree of colonic ischaemia and the presence or absence of persistent small vessel perfusion post-embolisation may have important prognostic implication in the development of bowel infarction.³ In early series, the incidence of colonic infarction was reported to be as high as 20%. The use of superselective embolisation to deliver particulate size of 100 µm or larger⁴ into the most distal arterial branches has resulted in a reduction of this complication with only 10% requiring surgery for ischaemia.⁵ Moreover, the

Figure 2 Selective study following coil delivery and particulate embolotherapy.

Figure 3 CT scan showing a large air cavity adjacent to the caecum.

combination of particulate and microcoil superselective embolisation may be advantageous in controlling haemorrhage caused by diffuse lesions such as vascular malformations with minimal amount of embolysates, reducing further the risk of infarction.⁶ Surgery is indicated for persistent haemorrhage, re-bleeding and signs of colonic ischaemia post embolisation.

Ischaemic strictures are late complications following embolisation,⁷ but fistulation has never been reported. This phenomenon results from transmural ischaemia. Our patient had a 'contained' colonic perforation with no suppuration, which eventually decompressed through the umbilicus creating a low-output colocutaneous fistula. The patient demonstrated no signs of sepsis in the early period, possibly due to immunosuppression secondary to chronic renal failure, hence the asymptomatic delay of the fistula.

Figure 4 Fistulogram confirming a colocutaneous fistula with contrast flowing into the caecum.

Conclusions

Interventional radiology, in the majority of cases, has become the method of choice in diagnosing and treating active lower gastrointestinal haemorrhage. This is a safe way of reducing the need for an emergency operation allowing adequate patient resuscitation. In most cases, patients undergo semi-elective surgery following optimisation. However, in some instances, mesenteric embolotherapy may be the only hope for those patients deemed unfit for any surgical procedure, as in the case presented.

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