Letters

TRANSVERSE-SIGMOID COLON KNOT: A RARE CAUSE OF BOWEL OBSTRUCTION

Editor,

We report the case of a transverse-sigmoid colon knot, a rare cause of large bowel obstruction. There have been no previous documented reports of a transverse-sigmoid colon knot in the literature. Early surgical exploration in this case prevented progression to strangulation of the bowel and gangrene, which avoided the need for resection.

Case Report: A 63-year-old lady was admitted to hospital with a 3-day history of lower abdominal pain and obstipation. On examination, she demonstrated a distended tender abdomen. Digital examination revealed faecal impaction of the rectum. Blood investigations were normal and abdominal X-ray revealed dilated large bowel loops with some faecal loading. Initially managed conservatively, she proceeded for a CT abdomen and pelvis to ascertain the cause of obstruction. This revealed a very convoluted and faecally loaded large bowel, with two apparent areas of volvulus involving the mid-transverse and sigmoid colon. There was no evidence of free fluid or free air. Without clinical improvement, she proceeded to an exploratory laparotomy which revealed a long and redundant sigmoid colon found to be looping around a very mobile and redundant transverse colon. The caecum, distal transverse and proximal sigmoid colon were grossly distended and loaded with faeces. The entire large bowel was carefully untwisted to relieve the apparent knot and all involved loops appeared congested but viable. No resection of bowel was required. The sigmoid colon and mobile left and right colon were fixed with Vicryl to the abdominal wall. A caecostomy was formed to allow the colon to remain decompressed. Post-operatively, the patient made an unremarkable recovery.

Discussion: The aetiology for intestinal knotting is unclear. It is likely that the knot is initiated by a hyperactive bowel which winds itself around the pedicle of a passive segment of bowel. On presentation, patients complain of abdominal pain and symptoms suggestive of intestinal obstruction. Preoperative diagnosis is extremely difficult due to the rarity of its occurrence and atypical radiological findings. As an advantage over the plain abdominal X-ray in diagnosing ileosigmoid knotting, computed tomography (CT) can identify medial deviation of the distal descending bowel with a pointed appearance of its medial border. Transverse-sigmoid knotting, however, does not appear to have such characteristic findings on CT imaging.

Closed proximal loops become congested and gangrenous within a few hours. Therefore, aggressive resuscitation, early surgical relief of obstruction and appropriate antibiotic cover followed by exploratory laparotomy are indicated. Usually the knot is tight and so untwisting the knot following deflation of the bowel is only possible when bowel loops remain viable. When friable, there is risk of perforation and septic shock and in such cases en-bloc resection of the gangrenous loops within the knot is highly recommended.

Conclusion: Intestinal knotting is a rare cause of bowel obstruction and despite reports in the literature that describe the clinical features and radiological appearances, diagnosis remains difficult. This report highlights to surgeons that in rarer cases of obstruction, where a clear diagnosis is not given and when conservative measures appear to be failing, prompt surgical intervention can work to reduce complications.

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Fig 1. Coronal CT image showing dilated large bowel loops loaded with faeces.

Fig 2. Photograph taken from theatre showing a grossly distended caecum, distal transverse and proximal sigmoid colon as a result of a transverse-sigmoid colon knot.
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REFERENCES

WALKING UP SHIPQUAY STREET. A TRADITIONAL WAY TO ASSESS CARDIAC RISK IN DERRY.

Editor,

NICE has recently issued guidance for patients with chest pain of recent onset suggesting exercise stress testing is of little value. Instead, an assessment is made of the nature of the pain then three risk factors in addition to age and gender are used to calculate a risk score. This allocates patients to a range of sophisticated tests including cardiac computed tomography, myocardial perfusion scan and coronary angiography.1

Generations of physicians in Derry have used a somewhat simpler way to assess cardiac risk.

The City of Londonderry was established on the hilly island of Derry by royal charter of James I on 29th March 1613. By 1618, the city was completely enclosed in a stone wall with 4 battlemented gates. Four main streets ran from the gates to meet together in an elevated central area called the Diamond. Shipquay Street ascends from the gate nearest the river Foyle up to the Diamond. Its proximity to the docks ensured that many merchants such as rope makers, coopers and ship chandlers located there in the 1800s. The street is 180 metres in length and ascends 30 metres yielding a gradient of 1 in 6 (17%). [Figures 1 and 2]

Walking up Shipquay Street at a moderate fixed pace (4km/hr) takes approximately 2 mins 40 secs. This matches the speed of stage 2 of a Bruce protocol exercise stress test but at a much steeper gradient. (12% for stage 2 and 14% for stage 3).

The exercise intensity associated with the walk is approximately 8-9 METS (1 MET = metabolic equivalent, an approximation of resting O2 consumption/kg/min). It is recognised that patients able to reach 8 METS have half the mortality of patients unable to achieve 5 METS with further incremental benefit of a 10-15% reduction in mortality for each addition MET over 8.2

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We asked consecutive Derry residents attending our Rapid Access Chest Pain Clinic if they could walk up Shipquay Street without expecting the pain that led to their referral. Fifty-five had no pain and of these, 53 (96.3%) completed a satisfactory treadmill test and were discharged. Two patients had unsatisfactory treadmills and underwent further tests: 1 with a positive treadmill underwent coronary angiography then stent insertion to right coronary artery and 1 with an equivocal test had a satisfactory myocardial perfusion scan. The negative predictive value of walking up Shipquay Street without pain is thus 98% in terms of a final diagnosis of obstructive coronary disease.

We are aware that Derry physicians have asked this question for at least 50 years. It is interesting to note that the NICE assessment of the nature of chest pain includes onset with exertion but if this was adapted to include local landmarks such as Shipquay Street perhaps fewer costly investigations would be required.

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FIFTY YEARS OF CARDIAC CATHETERISATION IN THE DIFFERENTIAL DIAGNOSIS OF LEFT VENTRICULAR OUTFLOW TRACT OBSTRUCTION: THE BROKENBROUGH-BRAUNWALD SIGN.

Editor,
In February 1961, Brockenbrough, Braunwald and Morrow described a new haemodynamic test in the differential diagnosis of left ventricular outflow tract (LVOT) obstruction, based on the haemodynamic profiles of the left ventricle and aorta immediately following an extrasystolic beat. Despite 50 years of multiple technological advances, the observation retains a place in the discrimination of fixed versus dynamic LVOT obstruction.

Fig 1. Dynamic left ventricular outflow tract (LVOT) obstruction (the Brockenbrough-Braunwald sign). At rest, a small (10mmHg) LVOT gradient is present (a) with an aortic pulse pressure of 110mmHg (b). Following two extrasystolic beats (VPC) there is a marked increase in LVOT gradient to 105mmHg (A) with a corresponding fall in pulse pressure to 75mmHg (B).

Fig 2. Fixed left ventricular outflow tract (LVOT) obstruction (In this example, aortic stenosis from the original work of Brockenbrough, Braunwald and Morrow (1)). At rest, the LVOT gradient is measured at 80mmHg (a) with a pulse pressure of 60mmHg (b). Following an extrasystolic beat (VPC) there is an increase in both LVOT gradient (A) and pulse pressure (B) to 115mmHg and 90mmHg respectively.
A 59 year old man, with hypertrophic cardiomyopathy was admitted for cardiac catheterisation after recent echocardiographic examination had shown a rise in LVOT gradient with progression of symptoms.

Simultaneous left ventricular and aortic pressure tracings revealed a classical Brockenbrough-Braunwald sign (figure 1) in keeping with “dynamic” LVOT obstruction. The sign is characterised by an abrupt increase in peak-systolic LVOT gradient, coupled with a decrease in aortic pulse pressure, immediately after an extrasystolic beat. It is distinct from “fixed” obstruction (e.g. aortic stenosis) where both the aortic pulse pressure and LV systolic pressure increase following an extrasystolic beat (figure 2).

Dynamic LVOT obstruction occurs when the ejection orifice is narrowed by increased force of LV contraction. This can occur during catecholaminergic stress, exercise, the use of cardiac inotropes and following an extrasystolic beat (post-extrasystolic potentiation). In the latter case, the reduced effective orifice area leads to a fall in stroke volume and the associated fall in aortic pressure.

Even fifty years after its first description, the physiological understanding of dynamic LVOT obstruction is greatly enhanced by the original work of Brockenbrough, Braunwald and Morrow.

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