

Rare complication of appendix: small bowel gangrene caused by the appendicular knot

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SUMMARY

Intestinal knot formation was first described by Riverius in 16th century and later by Rokitansky in 1836. We report a very rare cause of small bowel gangrene caused by appendiceal knotting on to the ileum in a previously healthy mid aged lady. Patient underwent laparotomy and right hemicolectomy and primary anastomosis. The intra operative findings were the appendix was twisting (knotting) the small bowel about 40cm from the terminal ileum and causing gangrene to the segment of small bowel. Appendicitis is a common condition and management is usually straightforward. However we must be aware of rare complications which may arise that require a change from the standard treatment of acute appendicitis.

CASE REPORT

A 44-year-old lady with no co-morbidities presented with history of abdominal pain associated with symptoms of acute intestinal obstruction for one day duration. Patient was clinically dehydrated and febrile. The abdomen was distended and had generalised tenderness. The initial blood investigation showed leucocytosis, total white count was 28,000 per microlitre, haemoglobin was 9.7g/dl, serum amylase was 1068u/L and the renal profile and liver function test were normal. The abdominal x-ray showed dilated small bowel. Patient underwent an emergency laparotomy. The intra operative findings were that the appendix was encircling (knotting) the small bowel about 40cm from the terminal ileum and resulting gangrene to the particular segment of the small bowel. The bowels proximal to it were distended but viable. The large bowels were normal and the tip of the appendix was distended and gangrenous. A right hemicolectomy with primary anastomosis was performed and patient was managed in the intensive care unit and recovered well. The Histopathology showed ischaemic small bowel secondary to strangulation by the appendix and the appendix was obstructed with a mucocele. The mesenteric fat showed marked congestion of the blood vessels. All the lymph nodes sampled showed reactive changes.

DISCUSSION

The appendiceal knotting of the affected segment of the bowel is a very rare surgical emergency which can rapidly evolve to gangrene of the affected segment of bowel. The patient can rapidly deteriorate as seen in our patient. Once

the knot is formed, it sets off a vicious cycle of intestinal occlusion and ischaemia due to continuous peristalsis and vascular pulsations, all leading towards gangrene.¹ Making an accurate pre-op diagnosis of intestinal knotting due to appendix can be challenging as patients usually presents with broad symptoms of intestinal obstruction or right iliac fossa pain. Intra – operatively, if the bowels were viable, untying the knot may be sufficient. However, if the bowels are ischaemic and non-viable or even gangrenous, bowel resection of all non-viable bowels with anastomosis is required. If the remaining segment is closer than 10cm to the ileocecal valve, ileocolic anastomosis is preferred.¹ The key of management is good resuscitation and urgent intervention. Post-operative intensive or high dependency care is important to improve the outcome for these patients.

Diagnostic laparoscopy could be an option especially in cases where the preoperative diagnosis is uncertain. Laparoscopic approach to abdominal emergency provides high diagnostic accuracy and therapeutic options.²

The cause for the appendix to knot around the small bowel is uncertain. Uday et al., reported that the process usually occurs when there is free movement of intestine with associated narrow mural attachment of the peritoneum.¹ Normal vaginal labour has triggered ileal knotting in one reported case.¹

Besides causing knotting of the small bowel, acute appendicitis has been recognized as a rare cause of small bowel obstruction. It usually results from adhesion due to peri-appendicular inflammation and is obviously different from ileus seen in patients with perforated appendicitis presenting with generalized or localised peritonitis.^{3,4}

The other rare causes of intestinal knotting have been reported are secondary to giant torsed gangrenous Meckel's diverticulum encircling the terminal ileum⁵ and ileo-ileal knotting causing small bowel gangrene.

CONCLUSION

Appendicitis and is a common condition encountered by clinicians and therefore it is important to report these new dimensions when they occur in order to inform the fellow clinicians with a view of improving morbidity and mortality.

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