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# Communications

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## The Kinked Cantor Tube Syndrome

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The Cantor intestinal tube, used to relieve intestinal obstruction, is generally thought to be safe. The following case presents an unusual complication in the use of this tube and the subsequent management of the patient. Steps to avoid the development of this problem are outlined.

### Case Report

A 16-year-old male patient, rather large for his age, was admitted to the Niagara Falls Memorial Hospital with a two-week history of abdominal pain, nausea, and emesis. There was no history of hematemesis or blood in the stools. There was a past history of alcohol abuse and moderate socioeconomic deprivation. His past medical history was otherwise unremarkable. A radiological and clinical diagnosis was initially made of a possible partial bowel obstruction. On the second day following admission, after x-ray examination, a Cantor tube was inserted by the usual method, using 5

cc of mercury. A flatplate x-ray film of the abdomen following this showed the tube to be coiled in the stomach. It was withdrawn approximately 8 inches and then reinserted down into the proximal intestine.

Further workup, including endoscopy, by a gastroenterologist confirmed the diagnosis of Crohn's disease. Specific therapy, including hyperalimentation and parenteral fluids, was initiated. The Cantor tube functioned normally and the patient improved clinically.

On x-ray examination, the Cantor tube was positioned in the area of the intestinal obstruction, located in the ileum. On day 9, an abdominal flatplate x-ray film was repeated, and it was noted that the Cantor tube was coiled in the distal ileum, just proximal to the previous point of intestinal obstruction (due to the Crohn's disease). Since the patient had improved, the Cantor tube was clamped, and clear fluids and oral steroids were begun. However, after an episode of abdominal pain on day 14, an additional flatplate x-ray film was repeated, which showed that the Cantor tube was knotted at its distal end (Figure 1); otherwise, it was correctly positioned near the terminal ileum.

This episode was believed to have occurred as a result of continued peristalsis, pushing the tube against a stenosed terminal ileum while the bowel immediately proximal remained dilated, thus al-

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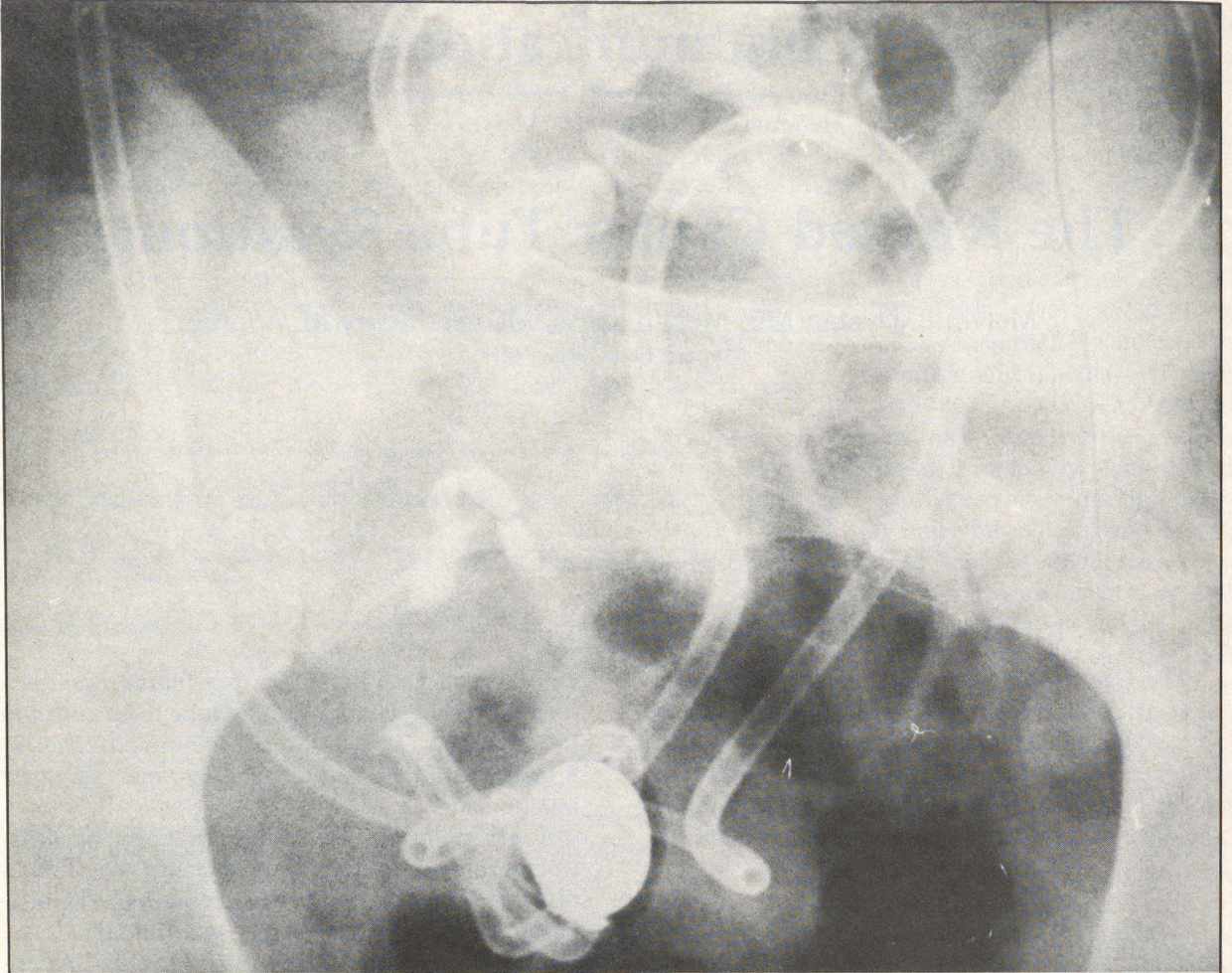


Figure 1. X-ray film of the knot in the tube

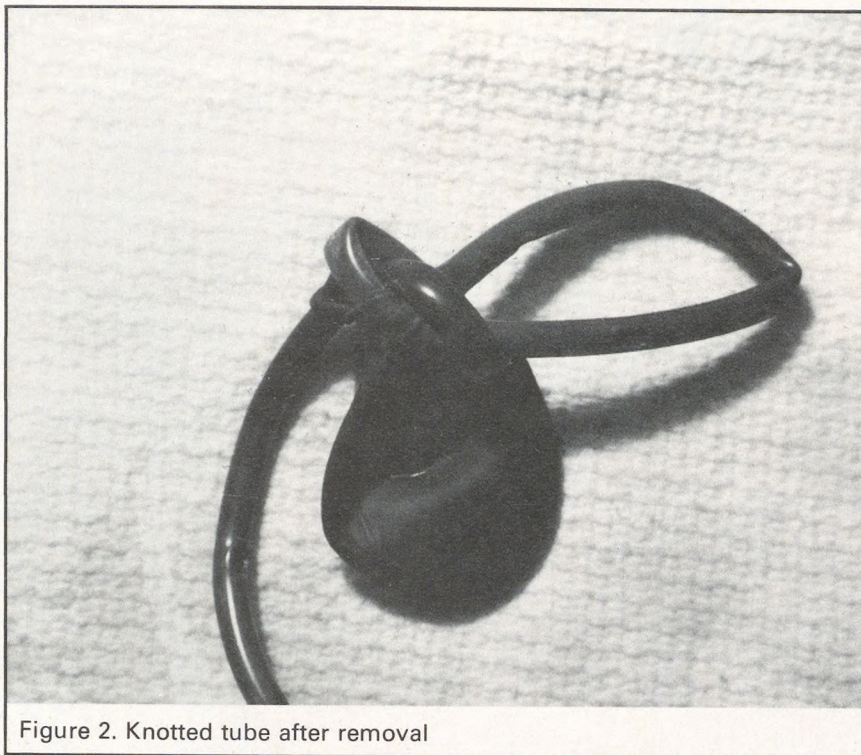
lowing room for coiling. There was concern over how to remove the tube without injuring the patient's bowel. Three methods were discussed. First, the method of pulling the tube through the nose was considered, but it seemed risky, with the likelihood of causing an iatrogenic intussusception or further small bowel obstruction should the tube anchor in the pylorus. Second, letting the patient swallow the tube was suggested, with the hope it would pass via the rectum. That this would be successful seemed unlikely when considering the etiology of the knot. Third, surgically removing the Cantor tube was considered, but no justifica-

tion for this invasive procedure could be found.

Under fluoroscopic guidance in the special procedures room of the radiology department, the Cantor tube was successfully pulled up into the patient's pylorus. After waiting several minutes with great anticipation, the tube finally passed successfully up into the stomach. It was then brought out through the patient's oropharynx. With uterine forceps the knot was brought out of the patient's mouth, the tube was cut, and the remaining tube was removed (Figure 2).

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### Comment

Although the manufacturer's brochure accompanying each Cantor tube warns of the possibility of knot formation, no mention of this complication could be found in the literature. Shulman reported the unusual occurrence of a Cantor tube looping around a gastroenterostomy site.<sup>1</sup> It was safely removed by fluoroscopy. Shub et al<sup>2</sup> and Sower and Wratten<sup>3</sup> reported on the occurrence of intussusception following intestinal intubation with a Cantor tube.

Several conclusions can be drawn from this case and the others cited herein. First, intestinal intubation is a generally safe and effective procedure. It can, however, be associated with certain risks, such as knotting, coiling, or even intussusception. These problems can be diagnosed by careful radiological follow-up. Second, in most

cases, surgical treatment can be avoided by removal of the tube using fluoroscopy. Third, the tube should not be tightly fixed to the nose but rather given 3 to 4 inches of slack to allow for some free forward movement. This precaution should prevent knotting or coiling and also reduce the likelihood of an intussusception occurring through the telescoping of bowel around a tightly fixed intestinal tube.

### References

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3. Sower N, Wratten GP: Intussusception due to intestinal tubes. *Am J Surg* 110:441, 1965