Nonoperative Retrieval of an Impacted Long Intestinal Tube

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Complications resulting from intestinal decompression tubes include retention secondary to knotting of the tube, bowel perforation, intussusception, leakage of mercury, and gaseous distention of the terminal balloon (1-7). Although balloon distention is one of the more unusual complications of intestinal intubation, recent publications have reiterated the seriousness of this problem which often has necessitated operation (6, 7).

We report successful removal of an impacted double-lumen tube after percutaneous needle decompression of the distended terminal balloon.

CASE REPORT

A 55-year-old female, who had undergone many abdominal operations, was referred to the Mayo Clinic for treatment of a jejuno-cutaneous fistula which followed laparotomy for recurrent intestinal obstruction due to adhesions. The fistula persisted despite parenteral hyperalimentation (complicated by catheter-induced bacteremia) and resection of a short segment of jejunum presumed to contain the fistula. Soon after her hospitalization here, fever and bacteremia again necessitated removing the subclavian catheter which was culture positive for Staphylococcus aureus. We were reluctant to reoperate the patient or to resume parenteral hyperalimentation. Hence, a small double-lumen tube was passed via an existing gastrostomy in order to aspirate intestinal secretions above the fistula and to infuse a chemically defined diet distal thereto. Tied to the tip of this double-lumen tube was a small, sealed, mercury-filled (1-cc) latex balloon covered with two similar balloons likewise ligated to the end of the tube.

During the first week of treatment, fistula output was minimal and feedings were well tolerated. Soon thereafter, crampy abdominal pain and increased fistula output occurred. Plain roentgenograms and water-soluble contrast-medium studies showed dilatation of the small intestine and obstruction caused by gaseous distention of the terminal balloon (Figure 1). Repeated attempts to withdraw the tube failed and caused the patient intolerable pain. Ongoing obstructive symptoms and reluctance to undertake surgery prompted urgent consideration of some other method of balloon decompression. Therefore, a fine-gauge needle was passed percutaneously under fluoroscopic guidance puncturing and decompressing the distended balloon. The tube was then easily withdrawn. The patient's subsequent course was uneventful with gradual closure of the fistula.

DISCUSSION

Distention and subsequent impaction of a terminal balloon is a recognized complication of intubation with long intestinal tubes. When distention reaches the point where the tube and balloon cannot be retracted, laparotomy is usually performed in order to perforate the balloon and withdraw the tube. Our case illustrates the possibility of percutaneous puncture of the balloon, thus avoiding the need for general anesthesia and laparotomy. This would appear to be a reasonably safe procedure based on previous studies and surgical experience (8).

Penetration of the intestinal tract even by large needles is typically harmless, since the needle tract seals off rapidly (9-12). One report demonstrated that bowel previously penetrated by 13- to 20-gauge needles can usually withstand 120 mm pressure without leaking (10). With complete intestinal obstruction, intraluminal pressure is usually less than 20 mm mercury (13). These data indicate that puncture of the intestinal tract with a small-gauge needle is unlikely to cause complications related to leakage of bowel contents through the needle site. No morbidity was encountered in a recently reported study of percutaneous biopsy of the pancreas, a proce-
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able, particularly when intubation exists for more than ten days. The potential hazard of unvented latex balloons is shared with a recent case calling attention to this danger (7).

Should balloon distention and tube impaction inadvertently occur, laparotomy has often been found necessary when the accepted alternative of decompressing the intestine in the vicinity of the balloon fails (6, 7). Our experience indicates the possibility of safely and promptly achieving deflation of the balloon by percutaneous puncture with a thin-gauge needle directed under fluoroscopic control.

SUMMARY

A patient with recurrent intestinal obstruction and jejunocutaneous fistula was referred for treatment of the latter condition. Management with total parenteral nutrition was complicated by bacteremia. Subsequently, a double-lumen tube was passed via an existing gastrostomy for purposes of aspirating above the level of the fistula and infusing appropriate nutrients and fluids distally. A period of marked clinical improvement was followed by increased fistula output and evidence of intestinal obstruction secondary to gaseous distention of a sealed latex terminal balloon which was retrieved only after percutaneous puncture. The unusual complication of prolonged intestinal intubation is discussed with special reference to this nonsurgical method of managing the impacted balloon and tube. Factors affecting balloon distention are discussed and the necessity of venting intestinal balloons reemphasized.

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REFERENCES