

## The elusive nasogastric tube

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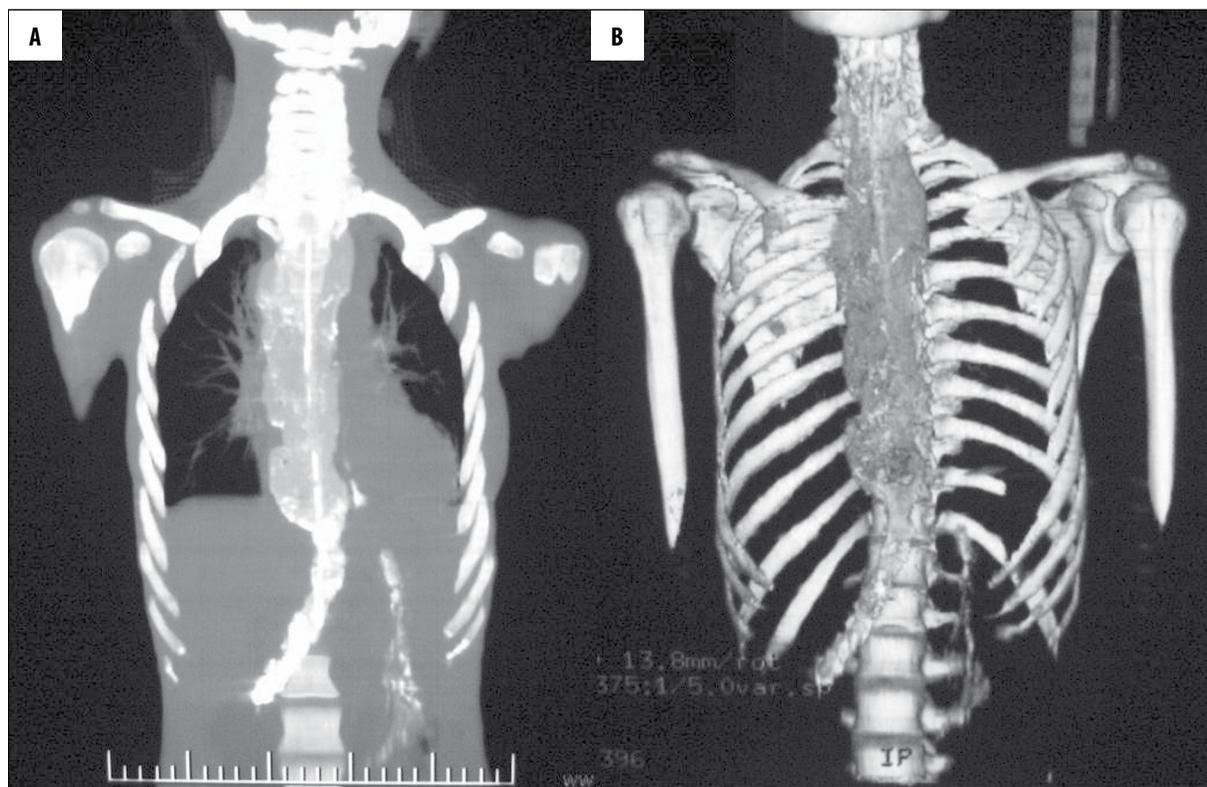
Recently, we cared for an interesting patient, whose case we would like to share it with the readers of this esteemed journal. A 30-year-old lady was evaluated for dysphagia intensifying over the past 6 months and was referred to us with a suspected diagnosis of carcinoma of upper esophagus three days after a placement of a nasogastric tube (NGT). She complained of mild, retrosternal chest pain and inability to retain the food given via her NGT. On examination, she was febrile, with a temperature of 100°F, but otherwise hemodynamically stable. Her neck and chest were clinically normal. Apart from mild tenderness with localized guarding in her epigastric region, abdominal and rectal examinations were unremarkable.

Hematological parameters revealed an anemia of 8 g/l and leukocytosis of 15 000/dl. Biochemical parameters showed prerenal azotemia and electrolyte imbalance in the form of hypokalemia and hyponatremia. A CT scan of her chest and abdomen with oral application of gastograffin was performed. The scan revealed extravasation of contrast to the

mediastinum, extending further down along two channels – one along the malpositioned nasogastric tube, ending blindly in the lesser sac, and the other continuing into the poorly distended stomach (Figure 1A, B).

A diagnosis of contained mediastinitis secondary to perforation after NGT intubation was made. Patient was immediately hydrated with intravenous fluids and received packed red blood cells in order to correct her electrolyte disturbances and anemia. The malpositioned NGT was initially retained and put on continuous suction in order to drain the extravasated contents from posterior mediastinum and the lesser sac. Mediastinitis was thus managed conservatively under broad-spectrum antibiotic coverage and patient received parenteral nutrition.

A feeding jejunostomy was subsequently formed to facilitate enteral nutrition. On laparotomy, we found that transverse colon and mesocolon had completely sealed off the upper abdomen and did not attempt to reposition them. Patient's



**Figure 1A, B.** Reconstructed, contrast-enhanced CT scan images of the chest and abdomen showing extravasation of contrast into mediastinum and extending further down along two channels – one along the malpositioned nasogastric tube, ending blindly in the lesser sac and the other continuing into the poorly distended stomach.

general condition gradually improved and she was discharged upon her own request on the 8<sup>th</sup> day following surgery on a high-calorie, high-protein enteral diet with a plan to further investigate the suspicion of malignancy in her cervical esophagus. However, the patient later failed to attend a follow-up.

NGT insertion is a procedure commonly performed in hospitals. It is performed mainly for two indications – enteral feeding or gastric decompression. Although generally safe, there are examples of associated complications – those secondary to NGT misplacement and those resulting from trauma due to the NGT itself or complications during its insertion. Esophageal perforation is a rare but catastrophic complication of NGT placement [1–5]. Diagnosis is delayed

at times, resulting in high mortality. A high index of suspicion is essential in a patient with signs and symptoms of mediastinitis following any instrumentation/intervention. Proper management of such emergencies is often controversial. Therapy must be individualized depending on the cause and specific location of perforation and timing of the diagnosis for the best possible outcome. Most hemodynamically stable patients can be managed conservatively without formal surgical drainage [3–5]. Free perforation and hemodynamic instability mandates a more aggressive surgical approach involving wide drainage of mediastinum and pleural cavities. Our patient was fortunate that, in spite of delayed presentation, we managed to tide her over the emergency.

## References:

1. Jackson RH, Payne DK, Bacon BR: Esophageal perforation due to nasogastric intubation. *Am J Gastroenterol*, 1990; 85: 439–42
2. Fisman DN, Ward ME: Intrapleural placement of a nasogastric tube: an unusual complication of nasotracheal intubation. *Can J Anaesth*, 1996; 43: 1252–56
3. Vogel SB, Rout WR, Martin TD et al: Esophageal Perforation in Adults: Aggressive, Conservative Treatment Lowers Morbidity and Mortality. *Ann Surg*, 2005; 241(6): 1016–23
4. Garey CL, Laituri CA, Kaye AJ et al: Esophageal perforation in children: a review of one institution's experience. *J Surg Res*, 2010; 164: 13–17
5. Bisgaard T, Wejdemann M, Heindorff H et al: Nonsurgical treatment of esophageal perforations after endoscopic palliation in advanced esophageal cancer. *Endoscopy*, 1997; 29: 155–59