

Acute pharyngitis, an unusual complication of intravenous hyperalimentation

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Abstract

While the numerous complications of intravenous hyperalimentation (IVH) are well recognized, we encountered a unique one. A 60-year-old man developed a sore throat, neck pain and fever seven days after catheterization of the subclavian vein to provide post-operative nutrition. Marked swelling was visible at the right posterior wall of his oropharynx and hypopharynx. X-ray of the neck revealed that the tip of the catheter was positioned in the internal jugular vein, not the subclavian vein as intended. The acute pharyngitis, diagnosed as due to phlebitis of the internal jugular vein due to the malpositioned catheter, subsided within two days of catheter removal.

Key words: Pharyngitis; Phlebitis, complications; Parenteral nutrition, total

Introduction

Since Dudrick *et al.* (1968) first described the feasibility of total parenteral nutrition, intravenous hyperalimentation (IVH) has been used with increasing frequency. Complications can be related to the placement and maintenance of venous access or the formulation and delivery of parenteral solutions. Complications related to catheter placement include the development of pneumothorax, haemothorax or hydrothorax; injury to the subclavian artery; cardiac arrhythmias if the catheter is placed into the atrium or the ventricle; air embolism or catheter embolism; sepsis secondary to contamination of the central venous catheter; thrombophlebitis or thrombosis of the superior vena cava; and rarely, cardiac perforation with tamponade (Shires *et al.*, 1989). To our knowledge, however, acute pharyngitis has not been previously reported as a complication of IVH. We describe an unusual complication in which misplacement of the catheter produced acute pharyngitis.

Case report

A 60-year-old man underwent rectosigmoidectomy for adenocarcinoma of the rectum on 2 July, 1991. An anastomotic leak with fistula was diagnosed on the 14th post-operative day. Antibiotics were infused via a peripheral vein, with oral intake forbidden. On July 19, 1991, IVH was initiated via a right subclavian vein catheter. The position of the catheter was not checked by chest X-ray. Seven days later, the patient complained of a severe sore throat and neck pain on the right side. He had a high fever. Twelve days after the IVH was started he was referred to us with suspected acute tonsillitis. Physical examination revealed that the right side of the oropharynx and hypopharynx was markedly swollen and reddened. The right submandibular region was tender, but not swollen. Blood tests revealed a white blood cell (WBC) count of $8360/\text{mm}^3$, C-reactive protein was 8.6 mg/dl. X-ray of the neck revealed the tip of the catheter positioned in the internal jugular vein (Figure 1). The diagnosis was acute pharyngitis due to phlebitis of the internal jugular vein due to malposition of the catheter.

Subsequently, the catheter was removed from the right sub-

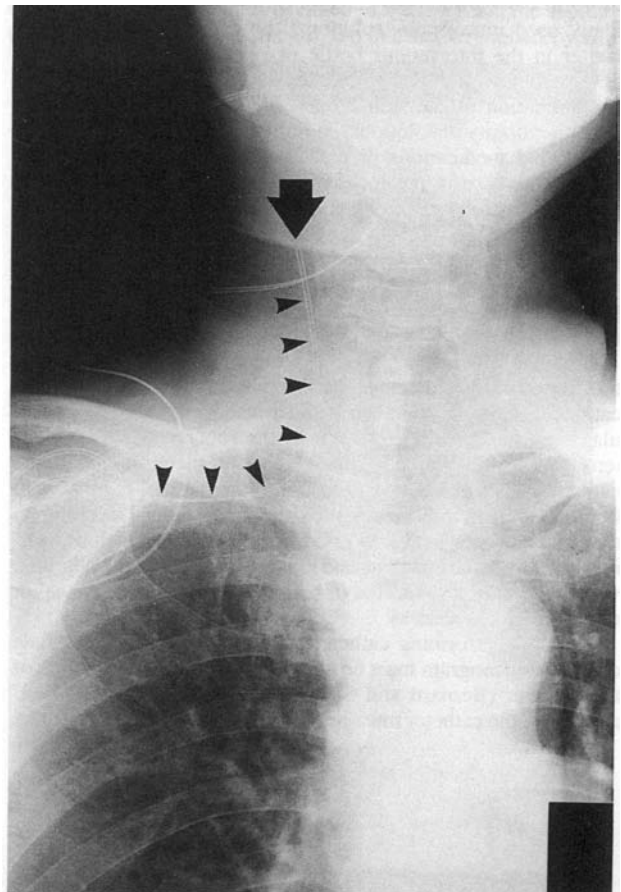


FIG. 1

Anterior view of the neck X-ray showing the catheter tip (large arrow) in the right internal jugular vein.

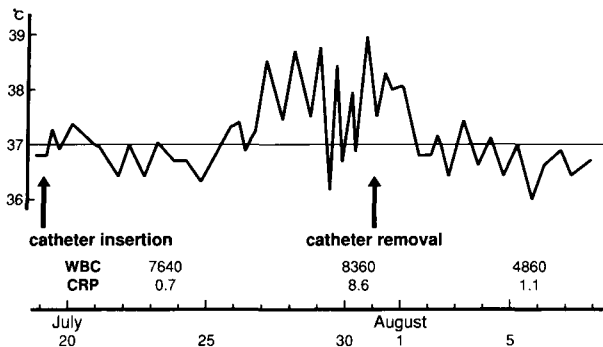


FIG. 2

Schema showing the course of the patient's temperature, WBC count (number/mm³), and C-reactive protein (mg/dl).

clavian vein, and to continue IVH, a new catheter was inserted into the left subclavian vein. The signs and symptoms of acute pharyngitis subsided within two days (Figure 2). IVH was continued for an additional three weeks until the colon fistula closed and oral intake became feasible.

Discussion

Five factors are directly associated with a high incidence of post-infusion phlebitis in hospitalized patients (Makarewicz *et al.*, 1986): the administration of drugs that irritate the intima; the trauma produced by catheter insertion leading to the formation of fibrin clots around the catheter tip; the low pH of most routinely used intravenous solutions; the presence of particulate matter in the intravenous bottle or plastic hardware; and the development of frank infection secondary to poor technique or to contamination of the skin around the catheter site. Since the hyperosmolarity of solutions, combined with the irritating effect of injected medications or catheter trauma, accounts for the marked increase in the incidence of phlebitis (Gazitua *et al.*, 1979; Belcastro *et al.*, 1990; Rypins *et al.*, 1990), prevention of phlebitis requires infusion via a large central vein with a high flow rate (Dudrick *et al.*, 1968; Ladefoged *et al.*, 1981; McDonnell *et al.*, 1984). Overt phlebitis or inflammation around the catheter site is reportedly 14 times more common with peripheral than with central catheters (Giuffrida *et al.*, 1986).

Deitel and McIntyre (1971) observed that 19 out of 79 catheterizations of the subclavian vein resulted in malposition of the catheter tip, which was mainly misdirected into the internal jugular vein. In 98 catheterizations of the subclavian vein, Christensen *et al.* (1967) described eight instances in which the catheter was inadvertently guided into the internal jugular vein. In two of the eight instances, the patients developed swelling on the ipsilateral side of the neck. Our patient did not develop swelling of the neck, although he had marked swelling of the pharynx, which was at first suspected of being either a parapharyngeal or retropharyngeal abscess.

Thus, in performing catheterization for IVH, an immediate chest roentgenogram must be obtained to confirm the position of the catheter (Bernard and Stahl, 1971; Ryan *et al.*, 1974). If necessary, the catheter must be repositioned as soon as possible.

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