Preventing of chylothorax after oesophagectomy by routine pre-operative administration of oral cream

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Abstract

The anatomy of the thoracic duct varies considerably. This can make it difficult to locate during oesophageal surgery, especially in the fasted patient. We describe the technique of administering cream orally before primary oesophageal surgery, to aid in the identification of the thoracic duct. The duct along with other lymphatic channels can then be ligated as appropriate, helping to reduce the incidence of post-operative chylothorax.

Keywords: Chylothorax; Oesophagogastrectomy; Cream

1. Introduction

The incidence of chylothorax following oesophagogastrectomy has been reported at being between 0.5% [1] and 4% [2]. Chylothorax is associated with an increased incidence of respiratory complications, prolonged hospital stay and an increase in mortality. The mortality rate of patients who develop a chylothorax is between 0% [3] and 75% [1].

The thoracic duct may be difficult to locate in the fasted patient, and its anatomy is very variable [4]. This may lead to inadvertent and unrecognised trauma to the duct with a resulting postoperative chylothorax. We present our technique of routinely administering cream prior to surgery in order to more easily identify the duct and other accessory lymphatic channels at the time of oesophageal resection.

2. Method

Patients are given 50 ml of single cream to drink 3 h prior to surgery. This is then followed by 50 ml of water to aid gastric transit. At operation the patient is intubated with a single lumen tube by rapid sequence induction with the application of cricoid pressure to prevent aspiration. An oesophagoscopy is then performed to reassess the tumour and at the same time remove any remaining cream from the stomach. The patient is then re-intubated with a double lumen tube and the operation performed. Most oesophageal resections in our unit are performed via a left-sided thoracoabdominal approach.

At operation the thoracic duct appears as a bright white vessel 2–3 mm in diameter (see Fig. 1A) of clearly different appearance from adjacent structures. It can then be easily identified and protected or ligated prior to division as necessary. If any accessory ducts are divided the chyle leak can be identified at the initial operation and the vessel ligated (Fig. 1B).

3. Results

Using this technique in 93 consecutive oesophageal resections over the last 2 years, no patients have developed a post-operative chylothorax. The thoracic duct has been well visualised in all cases, and has been either protected or ligated and divided, depending on the operative findings. In the 158 resections carried out in the 5 years prior to introduction of the technique there were 12 (7.5%) chylothoraces, six of whom required surgical closure of the chyle leak.

No patients have experienced any complications that could be related to the technique. Using rapid sequence induction of anaesthesia with cricoid pressure prior to endotracheal intubation, and evacuation of gastric contents with a gastroscopy, reflux of gastric contents into the trachea or lungs has not been in evidence. No patients have experi-
enced problems in swallowing the cream even in the presence of obstructive tumours.

4. Discussion

Post-operative administration of cream to patients suffering from chylothorax is well-recorded [5], either to facilitate the diagnosis or when surgical repair of the thoracic duct is planned for a chyle leak. However we believe that this is the first report of the routine use of cream given prior to oesophageal resection to aid thoracic duct visualisation, in an attempt to prevent the development of a post-operative chylothorax due to inadvertent and unrecognised thoracic duct trauma. Our patients have tolerated the cream well and have not experienced any adverse events. Swallowing water with the cream has allowed the patient to ingest the full amount prescribed, and we feel it aids transit of cream from the stomach to the small bowel. This is obviously necessary to ensure that the cream has been absorbed by the time of surgery is underway so that opacification of the thoracic duct by the increased chyle flow is optimised.

Although it is unscientific to compare two groups of patients without randomisation, nevertheless we conclude from our experience that the routine administration of oral cream prior to oesophageal surgery is an excellent way of identifying the thoracic duct and any accessory lymphatics at the time of surgery. We feel that in our patients the technique has helped to prevent postoperative chylothorax. This method is safe, inexpensive and well tolerated. We continue to use the technique routinely in all our patients undergoing oesophageal resection.

References