Successful management of post-esophagectomy chylothorax/chyloperitoneum by etilefrine*

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SUMMARY. Post-operative chylothorax and chyloperitoneum resulting from a thoracic duct injury are possible complications of esophagectomy for carcinoma. Management of such conditions includes conservative methods (pleural drainage, chyle flow reduction and supportive nutrition) and surgery. Etilefrine, a sympathomimetic drug used in the management of postural hypotension, also causes smooth muscle contraction of the thoracic duct. We successfully treated three patients with post-esophagectomy chylothorax and chyloperitoneum using intravenous etilefrine. Etilefrine infusion allowed chyle flow resolution in a few days without any side-effects. As result of this experience, we believe that etilefrine deserves to be considered as an alternative therapy in the management of post-esophagectomy chylothorax/chyloperitoneum.

INTRODUCTION

Thoracic duct injury is an undesirable event that can occur during chest surgery and particularly during mediastinal dissection.1–3 Esophageal resection constitutes a major cause of post-operative chyle leakage with an incidence of 1–4%.3 Management is a great challenge for physicians and the choice between conservative methods and surgery is still being debated.1,4 Conservative methods usually include drainage of the pleural cavity, chyle flow reduction and supportive nutrition.2–4 Although such methods sometimes prevent the need for surgery, they usually take several weeks.1,3 Thus, surgery remains a good alternative for some physicians.4,5 Etilefrine is a sympathomimetic drug used in postural hypotension.6 It causes contraction of smooth muscle fibers, which are known to be present in the thoracic duct.2 Thus, we investigated the usefulness of etilefrine in the management of post-esophagectomy chylothorax/chyloperitoneum in three patients operated on for esophageal carcinoma.

CASE REPORT

The three patients were referred to our institution with biopsy-proven esophageal carcinoma. The patients’ medical data are summarized in Table 1. Briefly, all three patients underwent surgery: one was subjected to the Ivor Lewis procedure for upper-third esophageal squamous cell carcinoma and two were subjected to the Akiyama procedure for lower third esophageal adenocarcinoma and squamous cell carcinoma. The lymphatic leak appeared as an increase in the thoracic and abdominal drainage output on the first, fourth and second post-operative day in patients 1, 2 and 3 respectively (Fig. 1). The output was at least 300 ml per day and contained more than 200 white cells/ml (lymphocytes, 60%). Etilefrine was used as a 5 mg/h intravenous infusion on the fifth post-operative day (Fig. 1). Chyle flow resolution was obtained for both patients on the 11th post-operative day. The etilefrine infusion was then halved and then stopped over 24 h in the first two patients and over 5 days for the third one. Chest or abdominal tubes were then promptly removed. No side-effects were noted during etilefrine administration. No other conservative method was used except pleural cavity drainage.

DISCUSSION

We report here successful management of post-esophagectomy chylothorax/chyloperitoneum in three
patients operated on for esophageal carcinoma. Although only pleural cavity drainage was associated with this medical management, chyle flow resolution was obtained for all the patients, even in a patient (patient 3) with a significant daily output (more than 1 l per day).

To our knowledge, the use of etilefrine for the management of chylothorax and chyloperitoneum has never been reported. The use of conservative methods or surgery for treating these conditions is still being debated.\(^1\)\(^-\)\(^5\) Conservative methods include pleural drainage,\(^1\)\(^-\)\(^3\) parenteral nutritional support\(^1\)\(^-\)\(^3\) and measures that reduce chyle flow, such as the withdrawal of oral fat intake except for medium-chain triglycerides\(^2\)\(^,\)\(^3\) and somatostatin analog administration.\(^2\)\(^,\)\(^3\) These methods reduce the quantity and total duration of chyle loss, avoiding the consequences of hypoproteinemia, hyponatremia, acidosis and hypercalcemia.\(^2\)\(^,\)\(^3\)

However, such methods usually require several weeks to effect total chyle flow resolution,\(^1\)\(^,\)\(^3\) and some authors support early operative intervention. The traditional approach is open thoracic\(^1\)\(^,\)\(^4\)\(^,\)\(^5\) or abdominal\(^6\) ligation. Usually, the leak is easily identified thanks to the administration of cream by the oral route or via a nasogastric tube.\(^2\)\(^,\)\(^3\) Methylene blue staining of the cream can be used to improve lymphatic leak identification.\(^5\) The success rate is usually good, nearly 95%,\(^3\) with little additional mortality.\(^1\)\(^,\)\(^4\)\(^,\)\(^5\) The thoracoscopic approach has been used successfully.\(^7\) Conservative methods and surgical procedures can be used simultaneously, and many therapeutic protocols have been reported.\(^1\)\(^-\)\(^4\)

Etilefrine is a sympathomimetic drug used in postural hypotension.\(^8\) Its use has also been reported in the management of priapism.\(^9\) It causes smooth muscle contraction, and this effect probably explains its role in the successful management of thoracic duct injury during esophageal resection (Fig. 2). Etilerine has few side-effects: headache, tachycardia, anxiety and flushes.\(^8\)\(^,\)\(^9\) None of these side-effects were noted in our three patients. Pregnancy is the main contraindication, but drug interactions also limit its association with halogenic and imipraminic drugs.

In conclusion, we successfully used etilefrine infusion in the management of post-esophagectomy chylothorax and chyloperitoneum. From this experience, we feel that etilefrine deserves to be considered as an alternative treatment for these debilitating conditions before more aggressive procedures are carried out.

References

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