Case report

Chylothorax : a case report

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ABSTRACT

Chylothorax, an accumulation of chyle in the pleural cavity, is a rare complication of penetrating or blunt trauma to the neck. It could result from damage to or obstruction of thoracic duct. Though rare in incidence, chylothorax can lead to significant morbidity and mortality. A milky fluid with high level of triglycerides in pleural fluid confirms diagnosis. This report is about a rare case of left chylothorax secondary to bull horn injury in the right side of neck and its management. A 48 year old male patient presented with bull horn injury on right side of neck with left side chylothorax. Initial management was conservative with pleural drainage. Later because of persistent chylous pleural fluid more than 1500 - 2000/day for more than 5 days, we explored and ligated the thoracic duct in the neck. Post operative period was uneventful and patient was symptom free at 6 months follow up. Isolated thoracic duct injury in trauma cases is even rarer. Early diagnosis and timely surgical management saves the patient.

Key words: Chylothorax, thoracic duct injury, post operative day

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INTRODUCTION

Chylothorax is occurrence of chyle in the pleural cavity due to damage or obstruction of thoracic duct. Chylothorax of traumatic origin may be an early or late complication after an accident. Etiology of chylothorax can be congenital, traumatic and non traumatic. Among traumatic causes, iatrogenic injury is most frequent consequent to surgical procedures for lung, esophagus, aorta, mediastinal tumor, radical neck dissection and inadvertent thoracic duct injury during central venous cannulation. Incidence of thoracic duct injury (TDI) due to traumatic cause or closed trauma to thorax after an accident is 0.2 - 3%.[1] Incidence of TDI in penetrating neck trauma is 0.9 - 1.3%,[2] but isolated TDI without associated tracheal, esophageal or vascular injury is rare. There are very few case reports of isolated thoracic duct injury in penetrating neck trauma. We report a case of chylothorax due to bull horn injury on right side of neck with left chylothorax (CHT) which was treated surgically.

CASE REPORT

A 48 year old male was admitted with bull horn injury on right side of neck just above right sternoclavicular joint. The wound had already been sutured prior to his presentation in our hospital. On primary survey, patient was haemodynamically stable with slight difficulty in breathing. There was no injury on left side of neck and no apparent drainage from sutured wound. However, the patient had bilateral subcutaneous emphysema in neck and left upper part of chest with decreased air entry on left side of chest. Chest X ray revealed hydropneumothorax and ultrasonography (USG) chest was suggestive of gross left pleural effusion. Patient was kept in intensive

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care unit (ICU) and emergency tube thoracostomy was done which drained 800 cc of hemorrhagic fluid. Patient was stable hence shifted to general ward the very next day. On the second day the inter costal tube (ICD) drainage was 950 cc and looked serosanguinous. The drainage increased to 1200 cc on third day and looked seropurulent. About 1500 cc of milky pleural fluid was drained on the fourth day; analysis of the fluid was suggestive of chylous fluid. Hence, patient was put on fat free, medium chain triglyceride, high protein diet orally and on intravenous octreotride 100 mg 8th hrly. Despite the above conservative measures, there was an increase in volume of fluid drained as shown in Table 1.

Table 1: Volume of fluid drained by intercostal tube (ICD) drainage from day 5 to 9

Post injury day	Volume of ICD drainage (cc)
5	1950
6	2100
7	2450
8	2800
9	3600

With increasing ICD drainage on 9th day, exploration was carried out through left posterolateral thoracotomy. During surgery, fresh cream was administered through Ryle's tube to locate the exact site of damage. Intraoperatively oozing of milky fluid was visualized but the site of thoracic duct injury could not be repaired through thoracotomy, hence left cervical incision was planned. Thoracic duct injury with its ragged edges was identified and ligated nearer to the entry to subclavian vein. Two ICDs in left chest were kept. Patient was kept in ICU on ventilator support for two days postoperatively and was shifted from ICU on third day. On post operative days (POD) 3 and 7, the apex and base ICD were removed respectively. Suture removal was done on 10th POD and the patient was discharged on 12th POD. Follow up at 6 months revealed no complications.

DISCUSSION

Our case is rare as patient had presented with right neck bull horn injury with left sided chylothorax. Often a latency period of 2-7 days exists between the time of injury and presentation of chylothorax.

Thoracic duct transports chyle and lymph from intestine, liver, abdominal wall and lower extremity in to central venous system. Trauma to the thoracic duct is commonest cause of chylothorax. TDI from penetrating or blunt trauma to neck is rare and it is extremely rare for thoracic duct to be injured in isolation without any associated major vascular or trachea - esophageal injury. Studies have reported the incidence of TDI in penetrating neck trauma as 0.9 - 1.3%.[2] There can be several branching patterns and pathways of thoracic duct termination. The risk of injury to terminal thoracic duct may be influenced by anatomical variations.[3,4] Majority of TDI occur on left side (75 - 92 %) as terminal segment of thoracic duct drains into neck veins. Without treatment, mortality can be up to 50%, hence early intervention is indicated.[4,5]

Loss of chyle and lymph into pleural space can lead to loss of essential proteins, immunoglobins, fats, vitamins, electrolytes and water with drastic consequences. In our case, TDI was diagnosed based on presence of CHT on 4th day with the neck wound sutured earlier and no milky, serous or serosanguinous discharge from the wound. Diagnosis should be suspected when milky pleural fluid drains on thoracocentesis or pleural drainage.

Pleural fluid triglycerides level more than 110 mg/dl with presence of chylomicrons, low cholesterol, and elevated lymphocytes are diagnostic of CHT which corresponded with our case.

General approach to TDI varies as some prefer early surgical intervention while others follow conservative approach to the problem. Conservative treatment is expensive and may fail in high output CHT. The conservative approach is usually attempted first. Pleural cavity should be drained followed by fat free diet with addition of medium chain triglycerides or nil by mouth with total parenteral nutrition. Somatostatin is an important adjuvant to conservative management of chyle leak. Surgical intervention is usually indicated when the chyle drainage rate is more than 1litre per day for a period of more than 5 days.[5-8] Similar line of management was undertaken in present case.

Various surgical options have been advocated for closure of duct as identification of tear and repair, ligation or patch closure, instillation of fibrin glue in pleural space, pleuroperitoneal shunt, pleurodesis, pleurectomy, pleural abrasion, thoracic duct embolization and open or thoracoscopic ligation of duct.[2,5-10]

CHT requires high index of suspicion for diagnosis and is confirmed by presence of chylous pleural fluid with elevated levels of triglycerides. Early diagnosis and timely appropriate treatment reduces mortality and morbidity.

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REFERENCES

1. Carrillo-Esper R, Sosa-Garcia JO, Carillo-Cordova CA. Chylothorax secendory to gunshot wound. Cir Ciruj 2009;77:447-9.
2. Eren S, Cakir O, Guloglu C, Eren MN. Isolated thoracic duct injury in penetrating neck trauma: a case report. Turkish journal of trauma and emergency surgery 2007;13:244-7.
3. Shimada K, Sato I. Morphological and histological analysis of thoracic duct at the jugulosubclavian junction in Japanese cadavers. Clin Anat 1997;10:163-72.
4. Langford RJ, Daudia AT, Malins TJ. A morphological study of thoracic duct at Jugulo- Subclavian Junction. J Craniofacio-maxillo Surg 1999;27:100-4.
5. Kumar S, Kumar A, Pawar DK. Thoracoscopic management of Thoracic duct Injury: Is there a place for conservatism?. J Postgrad Med 2004;50:57-9.
6. Riquet M, Badia A. Surgery for Chylothorax. Rev Pneumol Clin 2004;60:104-8.
7. Migliori C, Boroni G, Milianti S, Ekema G. Chylothorax. Minerva Pediatr 2010;62:89-91.
8. Riquet MM, Barthe FFLP, Badia A. Chylothorax. Presse Med 2002;31:548-55.
9. Pollak CV Jr, Kolb JC, Griswold JA. Chylous drainage from stab wound to the neck. Ann Emerg Med 1990,19:1450-3.
10. Patel N, Lewandowaski RJ, Bove M, Nemcek AA Jr, Salem R. Thoracic duct embolization: a new treatment for massive leak after neck dissection. Laryngoscope 2008;118:680-3.

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