ISSN: 0975-833X

Available online at http://www.journalcra.com

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

International Journal of Current Research
Vol. 13, Issue, 06, pp.17844-17846, June, 2021

DOI: https://doi.org/10.24941/ijcr.41442.06.2021

RESEARCH ARTICLE **OPEN ACCESS**

THORACIC DUCT CYST IN THE LEFT NECK.AN INTERESTING CASE REPORT AND LITERATURE REVIEW

Efstathios K. Metaxas,[1,*] Georgios Noussios,[2] Georgios Paraskevas,[2] Theodoros Piperos,[3] Gerasimos Papavasileiou[4] and Theodoros Mariolis – Sapsakos[3]

[1]Department of Thoracic Surgery, General Hospital of Nicaea –Piraeus Greece
[2]Medical School, Aristotelian University of Thessaloniki Greece
[3]National and Kapodistrian University of Athens Medical School, Department of General Surgery Oncological Hospital of Kifisia – Agioi Anargiroi, Athens Greece
[4]Department of Thoracic Surgery Oncological Hospital of Kifisia – Agioi Anargiroi, Athens Greece

ARTICLE INFO

Article History:
Received 27th March, 2021
Received in revised form
15th April, 2021
Accepted 20th May, 2021
Published online 30th June, 2021

Key Words:

Thoracic Duct, Thoracic Duct in the Left Neck.

ABSTRACT

It is about a 42 year old male patient diagnosed with a Thoracic Duct Cyst at the left neck who underwent successfully and uncomplicated removal of it. Analyze strategy of treatment, diagnosis, operative technique and literature review. It is extremely rare only a few cases have been reported in bibliography. A neck ultrasound can identify the lesion, also CT scan MRI can improve diagnosis. Pathology report can give finally the diagnosis-Gold standard. Special care should be given to avoid hemorrhage during the operation and complication associated with duct ligation. Radiotherapy and Cyst-venous anastomosis have been reported as alternative treatment. Regular follow up is necessary to diagnose early any kind of complication. Finally operation and further management needs to be done by a experience and well trained team.

Citation: Efstathios K. Metaxas, Georgios Noussios, Georgios Paraskevas, Theodoros Piperos, Gerasimos Papavasileiou and Theodoros Mariolis – Sapsakos. "Thoracic duct cyst in the left neck.an interesting case report and literature review", *2021. International Journal of Current Research, 13, (06), 17844-17846.*

INTRODUCTION

The Thoracic Duct Cyst at the left neck it is extremely rare only a few cases have been reported in bibliography. Description of the case in chronological order. The patient complained about progressive left neck pain. The left neck was also oedematous. Patient having consultation by physician underwent neck ultrasound. A cyst was found. MRI demonstrated cyst also. Then visited surgery department and elective surgery was scheduled. PMH of the patient with not known allergies. Appendectomy in childhood. Operation technique Left lateral incision 5cm at the left neck. Identify the structures.

Corresponding author:** ***Efstathios K. Metaxas
Department of Thoracic Surgery, General Hospital of Nicaea –Piraeus Greece.

Above the cyst left subclavian vein and left innominatevein. On the left side the left internal jugular vein. The cyst was very carefully excised (because of the vessels) A redonvaccum was placed and typical closure in layers. The specimen was sent to Pathology department. Patient had a good postoperative recovery and discharged home the first postoperative day. The Pathology report demonstrated thoracic duct cyst. As an outpatient at the regularly follow up six months post op he is asymptomatic and no complication has beenreported.

DISCUSSION

The thoracic duct is the largest lymphatic vessel in the human body.It is also known as van Hoorne's canal. Embryological the thoracic duct develops during the seventh and eighth week of gestational life from two vessels anterior to the aorta, which become the left and right embryonic thoracic ducts. The left one gives rise to the upper third of the adult thoracic duct while

the lower two-thirds of the adult duct arise from the right embryonic thoracic duct. The thoracic duct wall and lymph nodes are not fully formed at birth. Disturbances in formation result in various structural variations. It is approximately 40 cm in length in adults, and approximately 5 mm in width at its abdominal origin.The thoracic duct extends from the twelfth thoracic vertebrato the root of the neck. The thoracic duct is formed from the abdominal confluence of the left and right lumbar lymph trunks, as well as the left and right intestinal lymph trunks between T12 and L2. If the confluence of lymph trunks is saccular, it is referred to as cisterna chyli. The action of breathing helps chyle flow up the thoracic duct. The duct also contains smooth muscle within its walls, as well as interval valves (much like large veins), which prevent backflow of lymph.The thoracic duct crosses the diaphragm at the aortic hiatus at the level of the twelfth thoracic vertebra. The aortic opening is located in the posterior mediastinumand is formed either side by the left and right crura of the diaphragm. The duct continues to ascend, between the thoracic aorta on the left, and the azygous vein on the right, and crosses over to the left side between the fourth and sixth thoracic vertebrae. From this point, the duct ascends behind the aortic arch and the left subclavian artery. The duct will also lie anterior to the anterior scalene muscleand left phrenic nerve before its final destination. The fluid drains at the level of the venous angle (Pirogoff's angle) between the left subclavian vein and the left internal jugular vein, where it reenters the systemic venous circulation. It is often dilated or enlarged at its terminal segment. There is a bicuspid valve located at the junction of the thoracic duct with the draining vein (e.g. left internal jugular vein or left subclavian vein depending on anatomical variations), which prevents backflow of venous blood into the lymphatic system.The thoracic duct drains the lymph from 75% of the body, aside from the right upper right limb, right breast, right lung and right side of the headand neck (which are drained by the right lymphatic duct).*Drains to* venous angle (Pirgoff's angle)between left subclavian vein and left internal jugular vein. The thoracic duct drains lymph from the right and left descending thoracic lymph trunks, originating from the lower 6 intercostals spaces (6 to 11). The duct also receives lymph from intercostals spaces 1 to 5 via the upper intercostals lymph trunks. Additionaltributariesinclude the:

- Mediastinallymphtrunks
- Leftjugular trunk,
- Leftbronchomediastinal trunk
- Leftsubclaviantrunk

The thoracic duct occasionally divides into a right and left duct, with the left entering the venous system as normal, and the right draining into the right subclavian vein. The duct may also drain into the left internal jugular vein, or into the left brachiocephalic vein. Within the thoracic duct, a milky white fluid (chyle) containing both emulsified fats. Clinically thoracic duct may present as chylothorax, thoracic duct fistula and Virchow's node,

Chylothorax Any kind of rupture of the thoracic duct (traumatic or notaetiology) causes chyle to leak into the pleural cavity. Traumatic causes can be either iatrogenic (e.g. surgery - harvesting left mammary artery as a graft in cardiac surgery, radiation) or non-iatrogenic (e.g. penetrating or blunt trauma to the chest wall, forceful emesis or cough). Non-traumatic causes include malignancies[2,3] (lymphomas, oesophagectomies), other diseases such as tuberculosis,

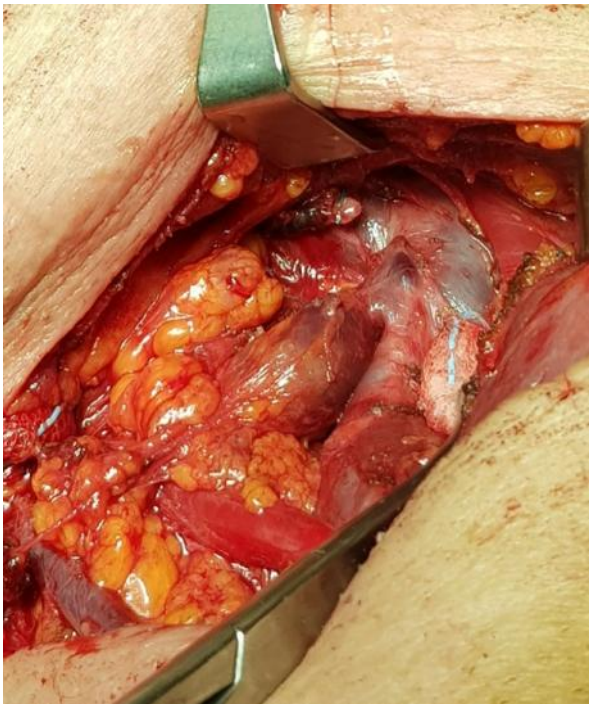

Image 1. Identify the structures around the cyst

Image 2. Removing carefully the cyst

sarcoidosis, superior vena cava obstruction. It can also be congenital (e.g. Down, Noonan, Turner syndromes). A radiography of the chest or a computer tomography would demonstrate a pleural effusion. Hamilton *et al* reported that CT and MRI may improve significant the diagnosis.[4] Initially a chest drain placed and the analysis of the fluid would show cholesterol and triglyceride high levels in the pleural that is characteristic for chylothorax diagnosis. Chest drain insertion, evacuation of chyle from pleural cavity to keep the lung expanded against the chest wall and mediastinum is crucial. Repeated evacuations may resolve the problem.[6] Total parental nutrition or oral diet high protein, very low fat diet for a short period of time, around 3 weeks or lessmay be very efficient.

[5]The surgical treatment based on ligation of the thoracic duct, pleurodesis, or a pleuroperitoneal shunt.[5] The success rates of such procedures have ranged from 25% to 95%.[4]Radiotherapy in the treatment of postoperative chylothorax[6] and Percutaneoustranslymphatic thoracic duct embolization for treatment of chylothorax there therapies have been also reported [7]

Thoracic duct fistula: Occurs post surgery in the lower part of the left side of the neck.[8] Thyroidectomies for cancer have been reported thoracic duct fistula as complication.[8]If this happen then intraoperatively should be repaired. Cushing in1898 reported that chyle *fistula* can induce severe nutritional, metabolic and immune disturbances, delay wound healing. It can lead to prolonged hospital stay, due to protein, electrolyte and fluid imbalances. Octreotide therapy has been reported to be successful in a therapy of thoracic duct fistula with no adverse reactions.[8]

Virchow's node: Is a large lymph node in the left supraclaviculararea (invenous angle, at the junction of the left subclavian vein and the thoracic duct) and drains the lymph from the gut. Was first described by Germanpathologist Rudolf Ludwig Karl Virchow. When it is enlarged (positive Troisier'ssign), it can be one of the earliest signs of intra-abdominal malignancy, usually a gastric carcinoma following migration of tumor emboli through the thoracic duct.[9]Virchow's node is not always malignant.This means that a number of diagnostic explorations need to be done to improve differential diagnosis like supraclavicular lymphadenopathy, supraclavicular lymph nodes, benign Virchow node. *Cervical thoracic duct cyst* is a rare benign entity with unclear pathology and probably due to congenital weakness, distal obstruction of the duct.[10] *Cervical thoracic duct cyst* could be also a rare malignant entity. Cervical thoracic duct cyst because of neck mass is very rare. Surgical excision with ligation of the cervical thoracic duct considered current standard treatment. Dortch *et al* presented a case report as an alternative method of treatment performing a cyst venous anastomosis for decompression.[11] It is about a 77 year old female presented with a six month history of left arm pain, swelling and a left-sided cystic neck mass. She was treated with cyst-venous anastomosis between the cyst wall and the left internal jugular vein. At two year follow-up, she has had resolution of pain and no recurrence of the mass. Dortch *et al* finally sustained that Cyst-venous anastomosis considered a safe with no complication treatment associated with duct ligation. The first reported case of thoracic duct cyst was in 1964 by Steinberg *et al*. Since that time, only 32 cases have been reported in the literature.

CONCLUSION

The Thoracic Duct Cyst at the left neck. It is extremely rare only a few cases have been reported in bibliography. A neck ultrasound can identify the lesion also CT and MRI can demonstrate the lesion. Pathology report can give finally the diagnosis-Gold standard. Special care should be given to avoid hemorrhage during the operation and complication associated with duct ligation. Radiotherapy and Cyst-venous anastomosis have been reported as alternative treatment. Regular follow up is necessary to diagnose early any kind of complication. Finally operation and further management needs to be done by a experience and well trained team.

REFERENCES

Abelardo E., Shastri P., Prabhu V. 2020. Variations in the management of Cervical Thoracic Duct Cyst. Biomed Hub 5:507275.

Hamilton B.E., Nesbit G.M., Gross N. *et al*. 2011. Characteristic imaging findings in lymphoceles of the head and neck. *AJR Am J Roentgenol.*, 197(December (6)):1431–1435.

Hans H Schid, Christian P Strassburg, Armin Welz, Jorg Kalff. 2013. Treatment options in Patients with Chylothorax. *Dtsch Arztebl Int.*, Nov; 110 (48): 819-826.

John D. Dortch, Dustin Eck, Albert G. *et al*. 2014. Management of cervical thoracic duct cyst with cyst-venous anastomosis. *Int J Surg Case Rep* 2014; 5(12): 1028-1030

Mark S. Swanson, Rachael L. Hudson, Nipun Bhandari. 2015. Use of Octreotide for the management of Chyle Fistula following neck dissection. *JAMA Otolaryngol Head Neck Surg.*, 141(8):723-727.

Mohamed S Suliman, Monider Singh, Aman Naim Ajmeri, *et al*. 2019. Virchow node: a case report of an extremely rare presentation of metastasis of adenocarcinoma with mucinous features from the colon. *International Journal of General Medicine.*,12 137–140

Schild H, Hirner A. 2001. Percutaneoustranslymphatic thoracic duct embolization for treatment of chylothorax.RöFo. 173:580–582.

Shah RD, Luketich JD, Schuchert MJ, *et al*. Postoesophagectomies chylothorax: Incidence, risk factors, and outcomes. *Ann Thorac Surg*., 2012;933:897–904.

Skandalakis JE, Skandalakis LJ, Skandalakis PN. 2007. Anatomy of the lymphatics. *Surg Oncol Clin N Am.*, 16:1–16

Sziklavari Z, Allgäuer M, Hübner G, *et al*. 2013. Radiotherapy in the treatment of postoperative chylothorax. *J Cardiothorac Surg.*, 8

Teng CL, Li KW, Yu JT, *et al*. 2012. Malignancy-associated chylothorax: a 20-year study of 18 patients from a single institution. *Eur J Cancer Care*., 21:599–605

****