International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Case Series

CASE SERIES OF MEDIASTINAL MASSES IN A TERTIARY CARE HOSPITAL OF EASTERN INDIA

Dr. Moumita Maiti[1], Dr. Moumita Paul[2], Dr. Swabarna Trivedi[3]

[1] Associate Professor, Department of Pathology, Nilratan Sircar Medical College and Hospital, Kolkata
[2] Associate Professor, Department of Pathology, Nilratan Sircar Medical College and Hospital, Kolkata
[3] Senior Resident, Department of Pathology, Nilratan Sircar Medical College and Hospital, Kolkata

OPEN ACCESS

Corresponding Author:

Dr. Swabarna Trivedi

Senior Resident, Department of Pathology, Nilratan Sircar Medical College and Hospital, Kolkata.

Received: 26-10-2025
Accepted: 23-11-2025
Available online: 30-11-2025

Copyright © *International Journal of Medical and Pharmaceutical Research*

ABSTRACT

Background-Various pathologies affect mediastinal organs. However, mediastinal masses are encountered very rarely in everyday practice. Rather, they are accidentally noted in routine X-rays in asymptomatic patients. We report few cases of mediastinal masses encountered in a tertiary care centre which might aid in management of this diagnostic challenge.
Objectives- To study histopathological types of mediastinal masses encountered in Eastern India, that enables pathologists and clinicians in their management.
Materials and Methods- An observational, cross-sectional, study was performed in NRS Medical College, Kolkata from March 2023 to February 2024.32 radiologically and clinically diagnosed cases of mediastinal masses were sent from Cardio-thoracic surgery department to the Department of Pathology (complete resection/biopsy). Tissue sections, after proper processing, were stained in H&E. Some tissues were sent for immunohistochemistry like CD45, CK7, S100, STAT6.
Results- Among the 32 cases of mediastinal masses: 23 males and 9 females; 6 children, 1 adolescent,25 adults; thymoma was the most common type, followed by lymphoma, neurofibroma and other rare variants (yolk sac tumour, teratoma, seminoma, malignant peripheral nerve sheath tumour, schwannoma, follicular neoplasm, thymolipoma, atypical lipomatous tumour, solitary fibrous tumour and inflammatory myofibroblastic tumor)
Conclusion- Mediastinal mass pose a diagnostic challenge as the differential diagnosis is quite varied depending on age, location, etc. But appropriate diagnosis, with clinical, radiological and histopathological correlation is essential for adequate management and early recovery.

Keywords*: mediastinal mass, lymphoma, thymoma.*

INTRODUCTION

The mediastinum is the space between the pleural cavities that contains the heart and all chest viscera except lungs. It is bound laterally by parietal pleura, anteriorly by sternum, posteriorly by ribs and paravertebral gutters, superiorly by thoracic inlet and inferiorly by diaphragm[1].The major structures in the mediastinum are heart occupying the middle compartment, oesophagus in posterior compartment, thymus in the anterior compartment. The aortic arch and proximal aorta are located in the superior compartment[2].

There are various pathologies that can affect the organs within the mediastinum. However, mediastinal masses are encountered very rarely in everyday practice. Lately, the number of asymptomatic patients who present with mediastinal masses on routine X-ray has increased[3].Young people are frequently affected but delayed diagnosis is associated with poor prognosis. They pose a diagnostic challenge and hence require clinical, radiological and histopathological correlation to differentiate amongst them. Investigation of the patient with mediastinal mass should follow a logical sequence.[3]With this information in the background, we report few cases of mediastinal masses encountered in a tertiary care centre which might aid in the differential diagnosis and treatment.

Objectives-

1. To portray the various histopathological types of mediastinal masses that are often encountered in Eastern India.
2. The knowledge about the spectrum of diagnosis not only interests pathologists from academic point of view, but also enables the clinicians to accurately and appropriately treat the case.

MATERIALS AND METHODS

The study was conducted over a period of 12 months from March 2023 to February 2024.
Patients diagnosed with mediastinal masses by radiology and clinical examination were selected. Specimens were either resected completely or obtained by biopsy. They were sent from Cardio-thoracic surgery department to the Department of Pathology along with a duly filled up consent form.

Study group comprised of 30 cases including males, females and children.
Detailed clinical history, investigation reports of the patients were checked and noted.
After gross examination of larger specimen, sections were taken at 1cm intervals and processed. Smaller biopsy specimen was processed in its entirety.

The tissues were stained with haematoxylin and eosin stain.
Some tissues were sent for immunohistochemistry like Glypican-3, CD117, CD15, CD30, TdT, CK19, MDM2, CD34 etc.

RESULTS

The total number of cases was 32. Out of which 23 were males and 9 were females (Table 1).

There were 6 children (below 12 years of age) ,1 adolescent, 25 adults. 5th decade was the most common age group (21.87%). (Table 2).

The most common type of mediastinal mass was thymoma (31.25%), followed by lymphoma (18.75%), neurofibroma (12.5%) and other rare variants (yolk sac tumour, teratoma, seminoma, malignant peripheral nerve sheath tumour, schwannoma, follicular neoplasm, thymolipoma, atypical lipomatous tumour, solitary fibrous tumour and inflammatory myofibroblastic tumor). (Table 3)

Table 1- Gender distribution

Gender	Number	Percentage (%)
-Male	23	71.87
-Female	09	28.12

Table 2- Age distribution

Age Group	Number	Percentage (%)
-0-9 years	01	3.12
-10-20 years	06	18.75
-21-30 years	06	18.75
-31-40 years	04	12.5
-41-50 years	07	21.87
-51-60 years	03	9.37
-61-70 years	03	9.37
-71-80 years	02	6.25

Table 3- Histopathological types

Histological type	Number	Percentage (%)
Germ cell tumours:		
-Yolk Sac Tumour	01	3.12
-Mature Teratoma	01	3.12
-Seminoma	02	6.25
-Lymphoma	06	18.75
-Hodgkin's lymphoma	[03]	[9.37]
-Burkitts's lymphoma	[01]	[3.12]
-Anaplastic large cell lymphoma	[02]	[6.25]

-Thymoma	10	31.25
-Type A		
-Type AB	[01]	[3.12]
-Type B (B1/B2/B3)	[05]	[15.62]
-Thymic carcinoma	[03]	[9.37]
	[01]	[3.12]
Peripheral Nerve sheath tumours:		
- Malignant peripheral nerve sheath tumour		
-Schwannoma		
-Neurofibroma	02	6.25
-Follicular Neoplasm	01	3.12
(Retrosternal thyroid)	04	12.5
Adiopocytic tumours:		
-Thymolipoma	01	3.12
-Atypical Lipomatous Tumour		
Fibroblastic and myofibroblastic tumours:	01	3.12
-Solitary fibrous Tumour	01	3.12
-Inflammatory myofibroblastic tumour		
	01	3.12
	01	3.12

PHOTOMICROGHRAPHS:

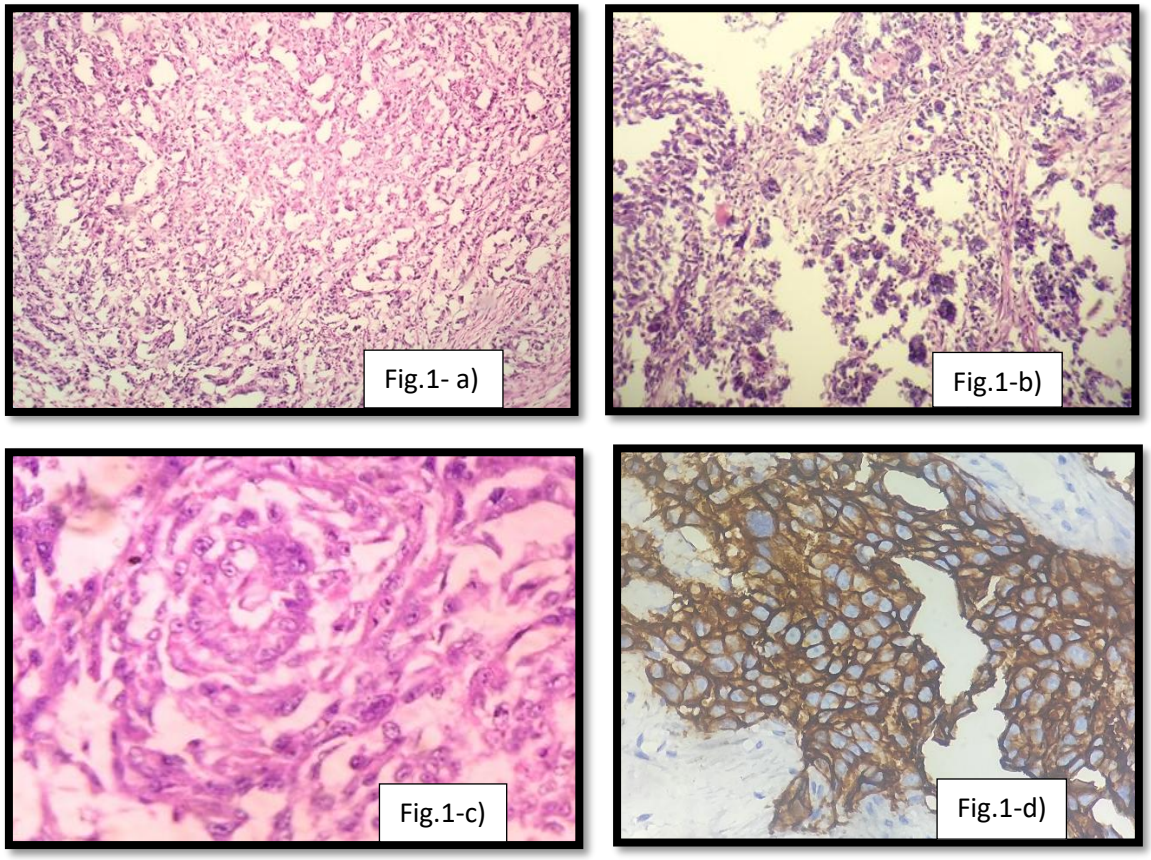

Figure 1. YOLK SAC TUMOUR. a) reticular pattern. (100x). b) papillary pattern. (100x). c) endodermal sinus pattern with Schiller Duval body. H&E (400x). d) Glypican-3 positive.

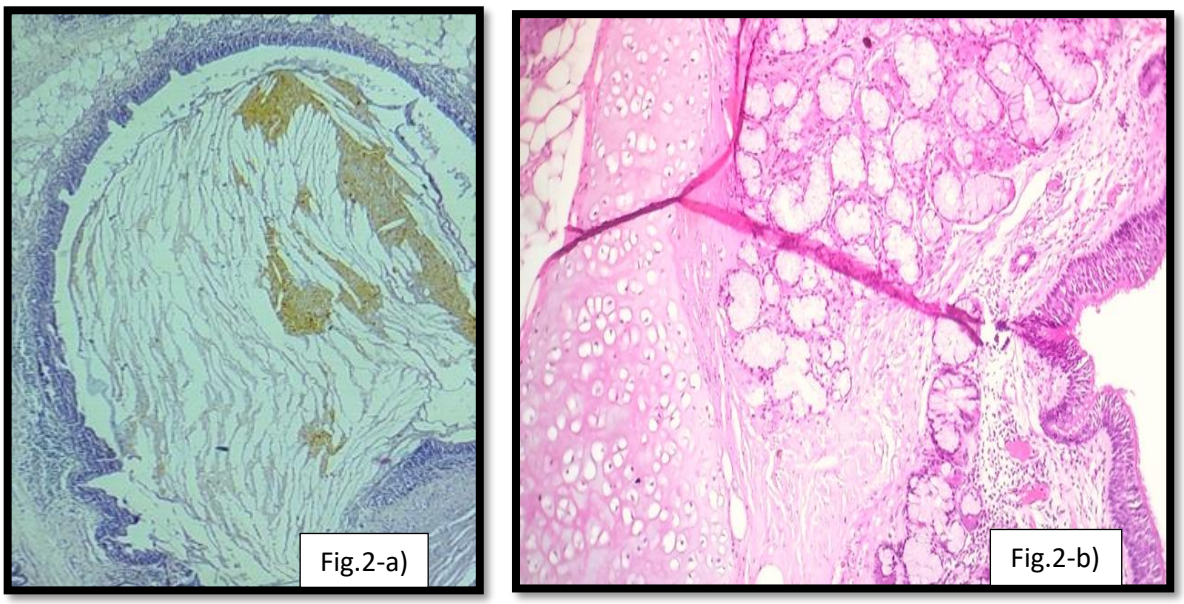

Figure 2. Mature Teratoma. a). Keratin debris, with squamous epithelium and adipose tissue. (100x). b) Respiratory type epithelium, mucous glands, cartilage, adipose tissue. H&E (100x).

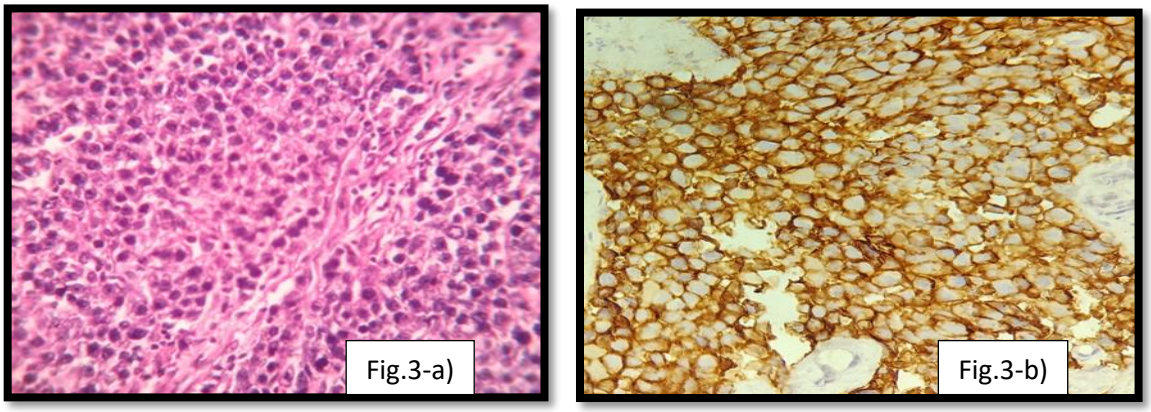

Figure.3. SEMINOMA. a) Sheets of tumour cells separated by fibrous septa with lymphocytic infiltrate. H&E. (400x). b) CD117 positive.

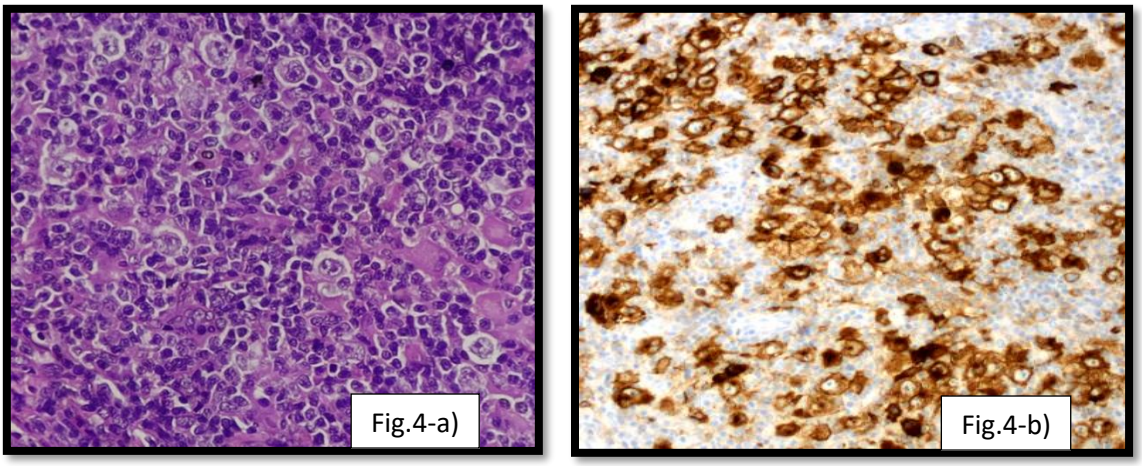

Figure.4. CLASSICAL HODGKIN'S LYMPHOMA. (Nodular sclerosis type)-a)Lacunar Hodgkin (RS) cells in a background of lymphocytes and inflammatory cells, seen in nodules separated by collagen bands. H&E. b) CD15 membranous, cytoplsmic and paranuclear (golgi) positivity in Reed Sternberg cells (400x).

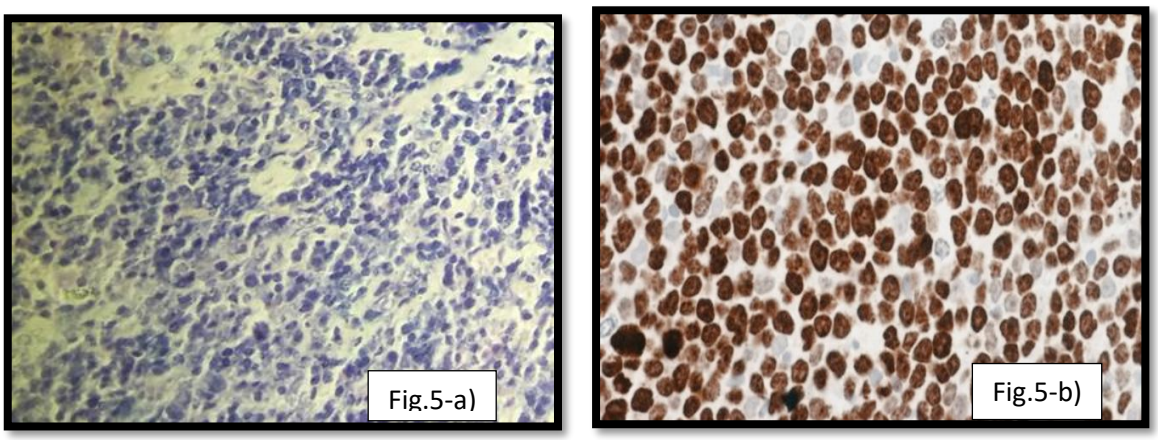

Figure 5. BURKITT'S LYMPHOMA- a)starry sky appearance: lymphoid cells interspersed with tangible body macrophages. Giemsa stain. b) Ki-67 index >95% (400x).

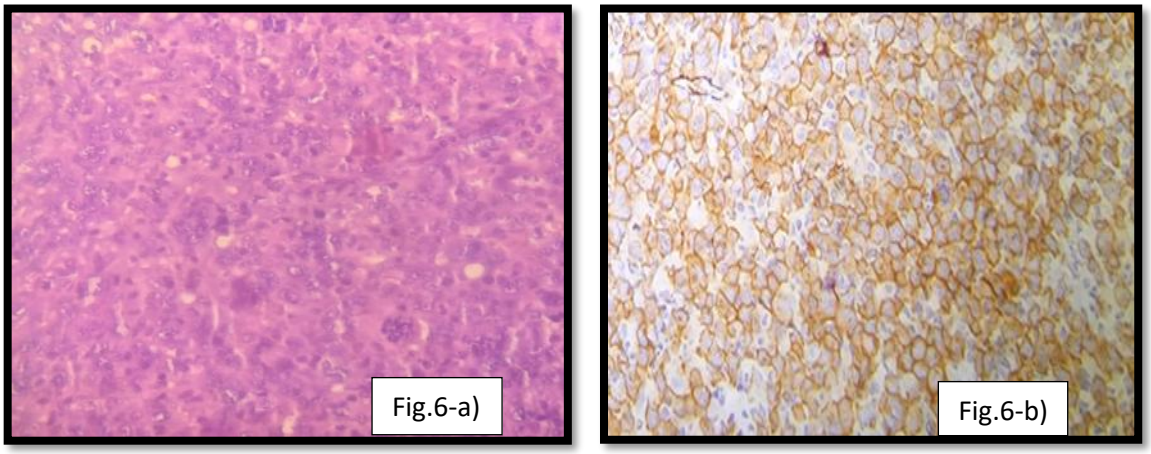

Figure 6. ANAPLASTIC LARGE CELL LYMPHOMA. Lymphoid cells are large, with abundant cytoplasm and pleomorphic, horseshoe shaped nuclei called hallmark cells. a) H&E. b) CD30 membranous and paranuclear (golgi) positivity. (400x)

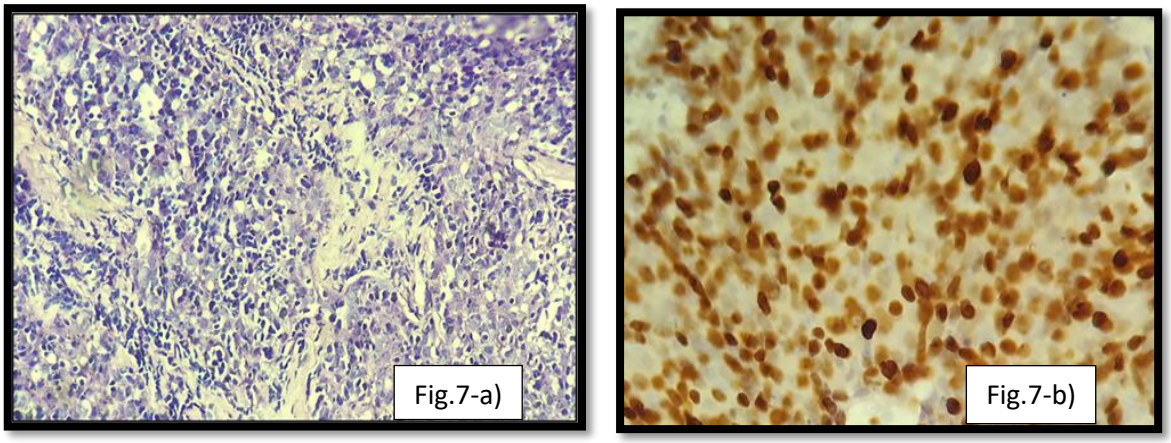

Figure 7. THYMOMA B2 type. a)Polygonal neoplastic epithelial cells in cluster (>3 contiguous cells) along with heavy population of immature T cells. Giemsa stain. b) TdT positive immature T cells. (400x)

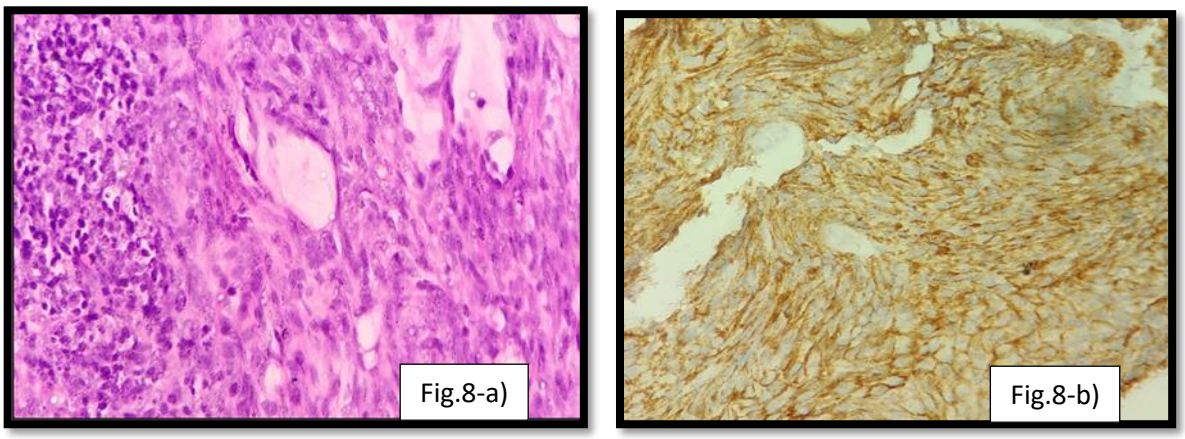

Figure 8. THYMOMA AB type. a) Foci of spindle cells (type A component) and immature T cells (type B component). H&E. b) CK 19 positive neoplastic spindle shaped epithelial cells. (400x)

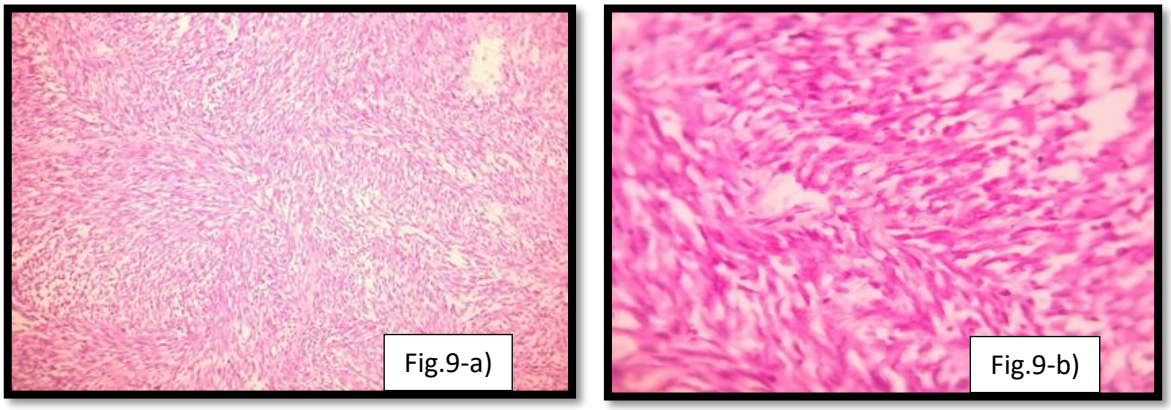

Figure 9. MALIGNANT PERIPHERAL NERVE SHEATH TUMOUR. Fascicular growth of uniform spindle cells with hyperchromatic, wavy nuclei, with frequent mitosis. H&E. a) LPF (100x). b) HPF (400x)

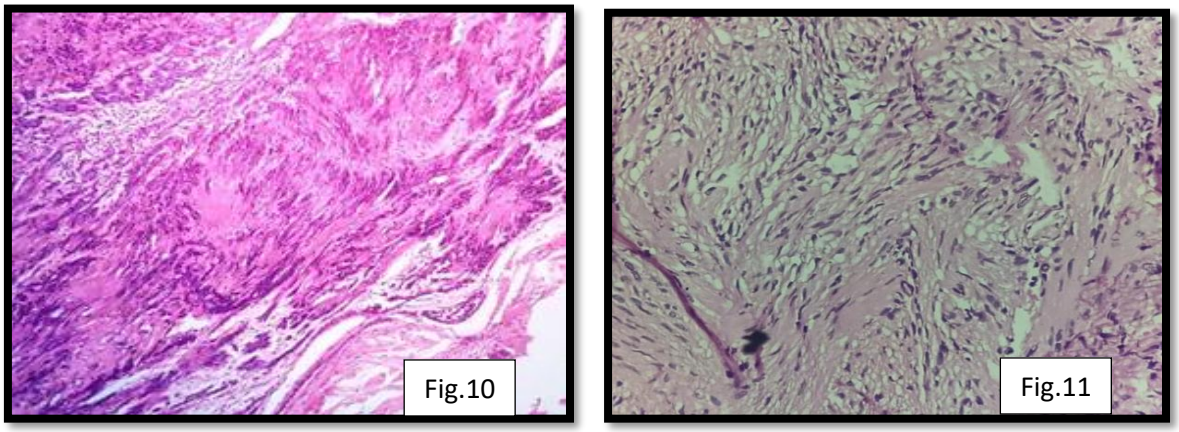

Figure 10. SCHWANNOMA. Hypercellular Antoni A areas (with Verocay bodies- nuclear palisading around fibrillary process) and hypocellular Antoni B areas. Figure 11. NEUROFIBROMA. Bland Schwann cells admixed with stromal cells: mast cells, perineural cells, fibroblasts and collagen fibrils. H&E. (100x)

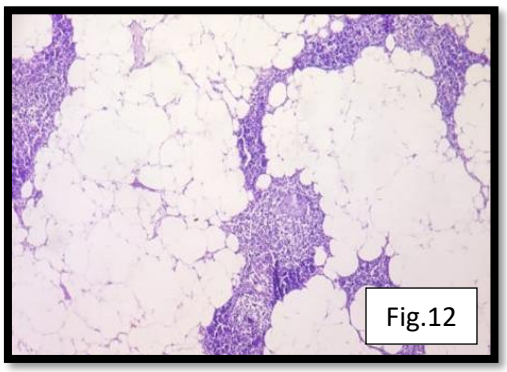

Figure 12. Thymolipoma- Tumour consists of mature adipose tissue with interspersed non-neoplastic thymic tissue. H&E. (100x)

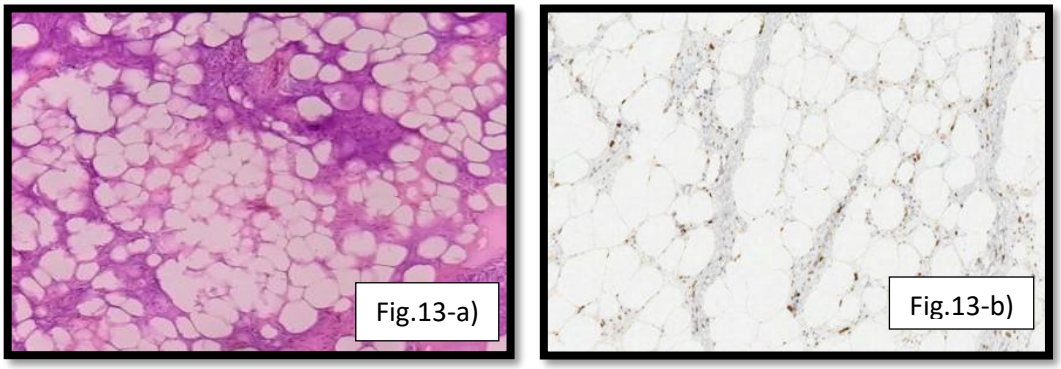

Figure 13. ATYPICAL LIPOMATOUS TUMOUR. a) Adipocytic subtype. Mature adipocytes with varying size and nuclear atypia in both adipocytes and stromal cells. H&E. (100x) b) MDM2 nuclear immunopositivity. (400x)

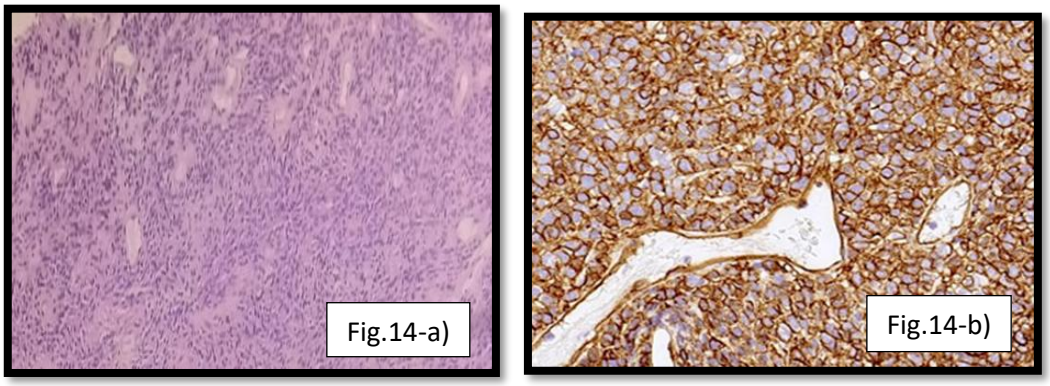

Figure 14. SOLITARY FIBROUS TUMOUR. a) Haphazardly arranged spindle to ovoid cells in a collagenous stroma with thin-walled branching blood vessels. H&E. (100x). b) Strong and diffuse expression of CD34. (400x)

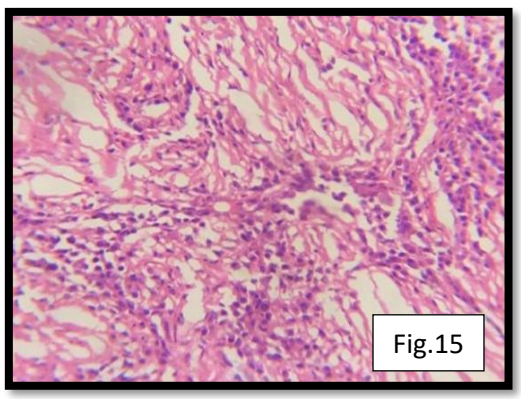

Figure 15. INFLAMMATORY MYOFIBROBLASTIC TUMOUR. Loose fascicles of myofibroblastic and fibroblastic spindle cells with inflammatory cell infiltrate of lymphocytes, plasma cells and eosinophils. H&E. (400x)

DISCUSSION

Laurent F et al (1998) found that the most frequent (60%) mediastinal lesions are thymoma, neurogenic tumors and benign cysts. Neurogenic tumors, germ cell neoplasms and foregut cysts represent 80% of childhood lesions, whereas primary thymic neoplasms, thyroid masses and lymphomas are common in adults.[4] It is consistent with our study where 53.12% of mediastinal masses consist of thymoma and peripheral nerve sheath tumors.

Tomiyana N et al (2009) observed that anterior mediastinal tumor account for 50% of all mediastinal masses including thymoma, teratoma, thyroid disease and lymphoma[5], quite similar to our study (56.25%).
Duwe BV et al (2005) found that masses of middle mediastinum are typically congenital cysts while those arising in posterior medistinum are often neurogenic tumor.[6]

Usual symptoms at presentation are cough, chest pain, fever and dyspnoea, localising symptoms are secondary to tumor invasion (respiratory compromise, paralysis of limbs, diaphragm or vocal cords, Horner syndrome, superior vena cava syndrome), while systemic symptoms are due to release of excess hormones, antibodies or cytokines.[7]

Sridhar R et al (2021) concluded that 45.2 % of mediastinal lesions are malignant and the masses were commonly located in middle mediastinum[8], whereas in our study 68.75% were malignant masses.

Maximum number of patients were seen in 3rd decade of life in the study conducted by Aroor AR et al (2014)[9], whereas our study found 5th decade (21.87%) to be predominant age group, closely followed by 2nd (18.75%) and 3rd decade (18.75%).

Baram A et al (2016) found that male predilection for mediastinal masses was more than female, out of 85 patients 46 were males and 39 were females[10], quite similar to our study with male predominance (71.87%).

CONCLUSION

Although thymoma and lymphoma are the most common types of mediastinal masses, other rare tumours are also encountered, which if not diagnosed and managed early, may have adverse prognosis. Hence, clinical, radiological and histopathological correlation is required for adequate handling of this diagnostic challenge.

REFERENCES

1. Long SS, Prober CG, Fischer M. Mediastinal and hilar lymphadenopathy. Principles and Practice of Pediatric Infectious Diseases. 5th ed. Elsevier; 2018. P 148-156.
2. Dehner LP. Mediastinum. In: Pfeifer JD, Humphrey PA, Ritter JH, Dehner LP. The Washington Manual of Surgical Pathology. 3rd ed. New Delhi: Wolters Kluwer ;2019. P 146-164.
3. Silverman NA, Sabiston DC Jr. Mediastinal Masses. Surg Clin North Am. 1980 Aug; 60 (4): 757-77. doi: 10.1016/s0039-6109(16)42181-X. PMID:6252642.
4. Laurent F, Latrabe V, Lecesne R, Zennaro H, Airaud JY, Rauturier JF et al. Mediastinal masses: diagnostic approach. Eur Radiol. 1998;8(7):1148-59. doi: 10.1007/s003300050525. PMID: 9724429.
5. Tomiyama N, Honda O, Tsubamoto M, Inoue A, Sumikawa H, Kuriyama K et al. Anterior mediastinal tumors: diagnostic accuracy of CT and MRI. Eur J Radiol. 2009 Feb; 69(2):280-8. doi: 10.1016/j.ejrad.2007.10.002. Epub 2007 Nov 26. PMID: 18023547.
6. Duwe BV, Sterman DH, Musani AI. Tumors of the mediastinum. Chest. 2005 Oct;128(4):2893-909. doi: 10.1378/chest.128.4.2893. PMID: 16236967.
7. Juanpere S, Cañete N, Ortuño P, Martínez S, Sanchez G, Bernado L. A diagnostic approach to the mediastinal masses. Insights Imaging. 2013 Feb;4(1):29-52. doi: 10.1007/s13244-012-0201-0. Epub 2012 Dec 6. PMID: 23225215.
8. Sridhar R, Narasimhan R, Sundararajan L, Singh RB. Clinicoradiopathological Features among Mediastinal Masses. Indian J Respir Care [Internet] 2021; 10 (1):41-46. doi: 10.4103/ijrc.ijrc_48_20
9. Aroor AR, Prakasha S R, Seshadri S, S T, Raghuraj U. A study of clinical characteristics of mediastinal mass. J Clin Diagn Res [Internet]. 2014 Feb;8(2):77-80. doi: 10.7860/JCDR/2014/7622.4013. Epub 2014 Feb 3. PMID: 24701488.
10. Baram A, Tayeb ZA. Mediastinal Masses: Retrospective Single Center Based Study. J Cancer Sci Ther [Internet] 2016 Jan, 8 (10): 252-56. doi: 10.4172/1948-5956.1000422