CASE OF THE FORTNIGHT

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Final Diagnosis:

Schwannoma, right paravertebral region.

and,

Nodular histiocytic/mesothelial hyperplasia, pleura.

Clinical history: 58 years old female underwent evaluation for renal colic and was found to have a right sided pleural effusion on imaging.

MRI showed a 11.4x11.7x10.6 cm complex solid-cystic lesion in the right paravertebral region with extension into the right thoracic cavity and into the thecal sac with widening of the T9-T10 neural foramina. There was moderate to gross pleural effusion.

Gross: Encapsulated globular mass measuring 12.5x9.5x8.5cm. The external surface appeared congested. Sectioning revealed a partly cystic tumor. The solid areas showed focal haemorrhagic foci and areas of yellowish discolouration. Also present in the container was a strip of greyish membranous tissue, 10x4cm.

Photomicrographs of globular mass:

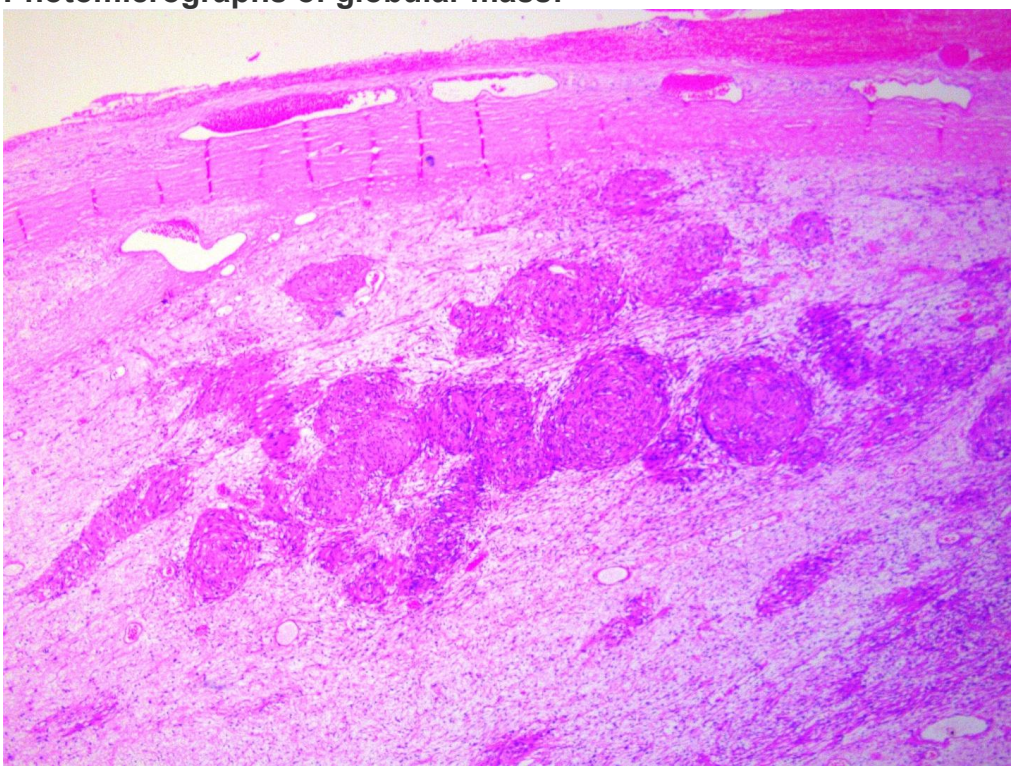

Fig 1: Schwannoma: Encapsulated tumor with Antoni A and Antoni B areas (H&E x 40)

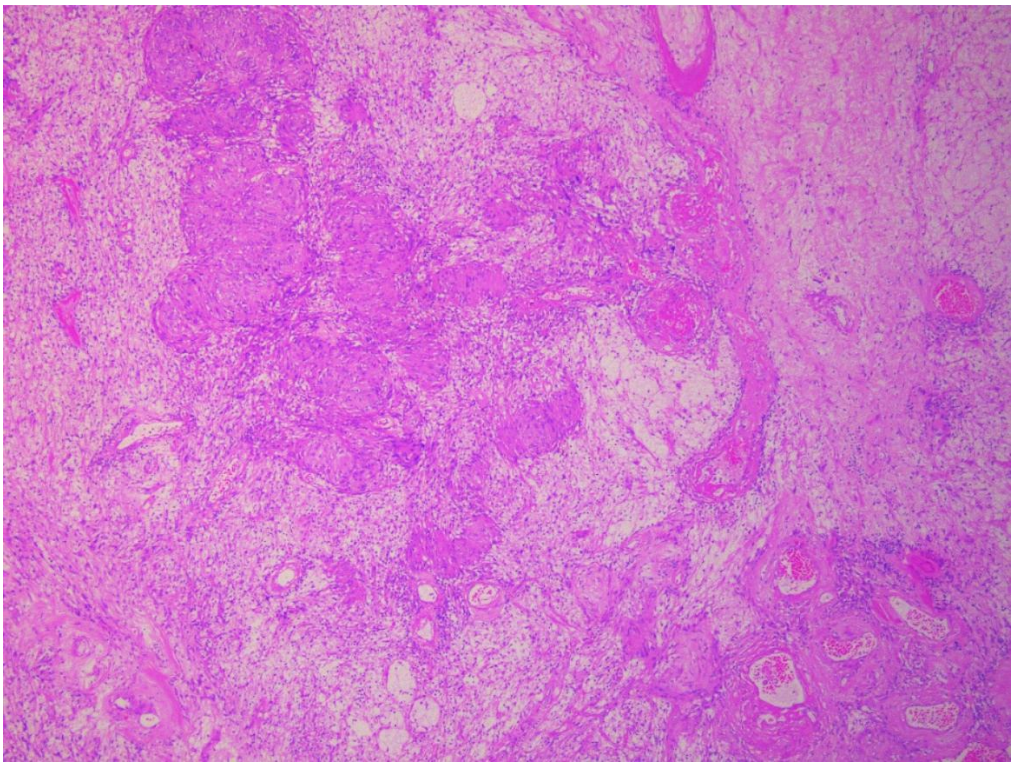

Fig 2: Schwannoma: Antoni A and Antoni B areas (H&E x 40)

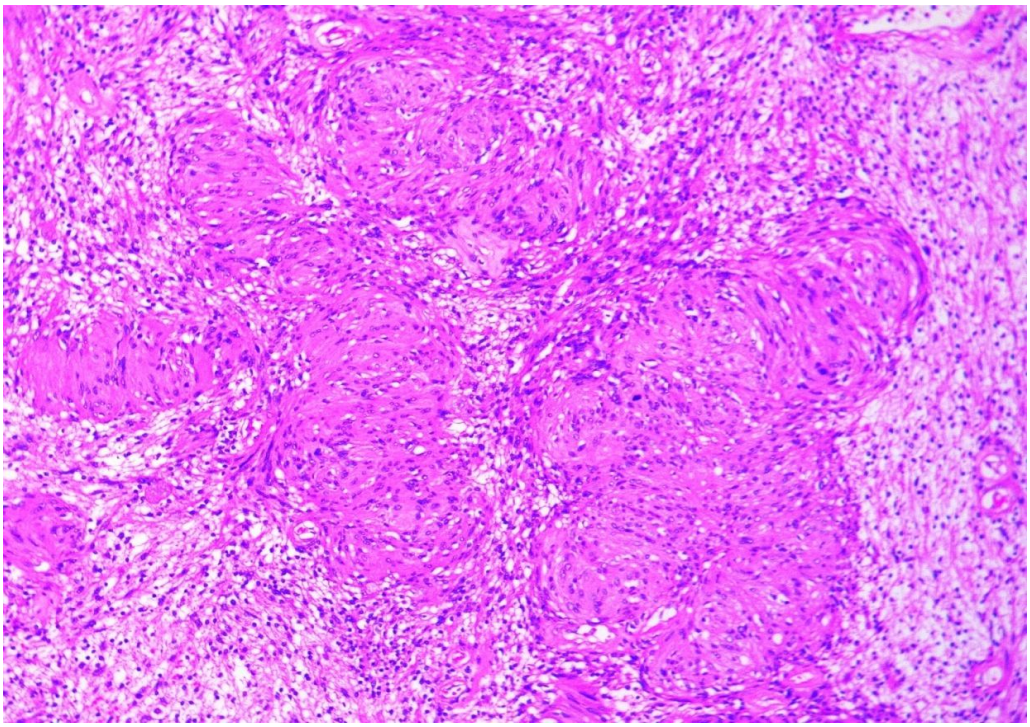

Fig 3: Schwannoma with classic Verocay bodies (H&E x 100)

Photomicrographs of the membrane:

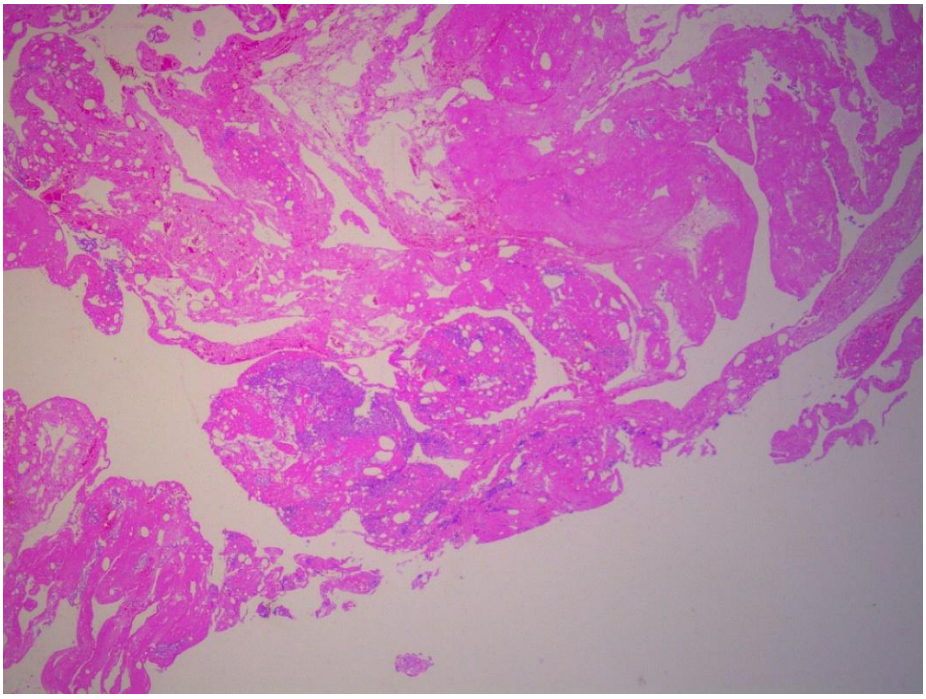

Fig 4: Strips of acellular fibrinous material admixed with nodular aggregates of cells (H&E x 25)

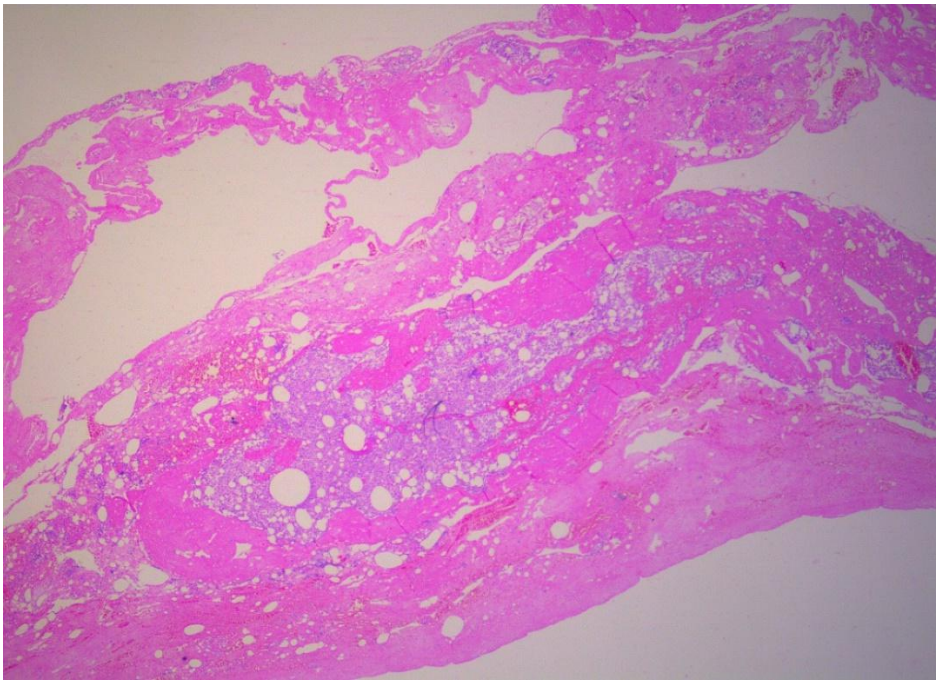

Fig 5: Strips of acellular fibrinous material admixed with nodular aggregates of cells (H&E x 40)

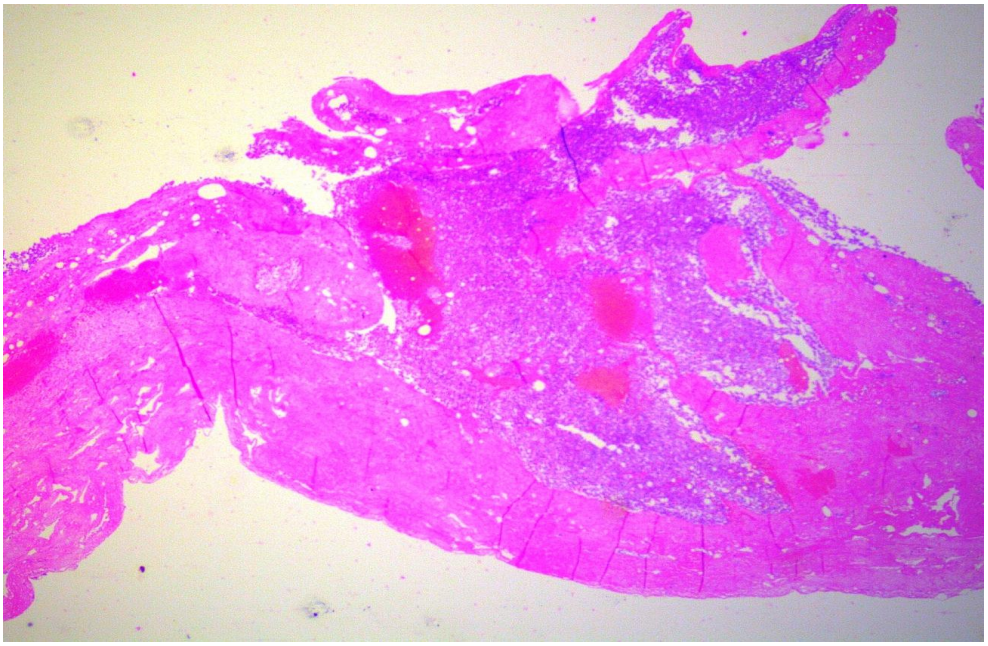

Fig 6: Strips of acellular fibrinous material admixed with nodular aggregates and sheets of cells (H&E x 40)

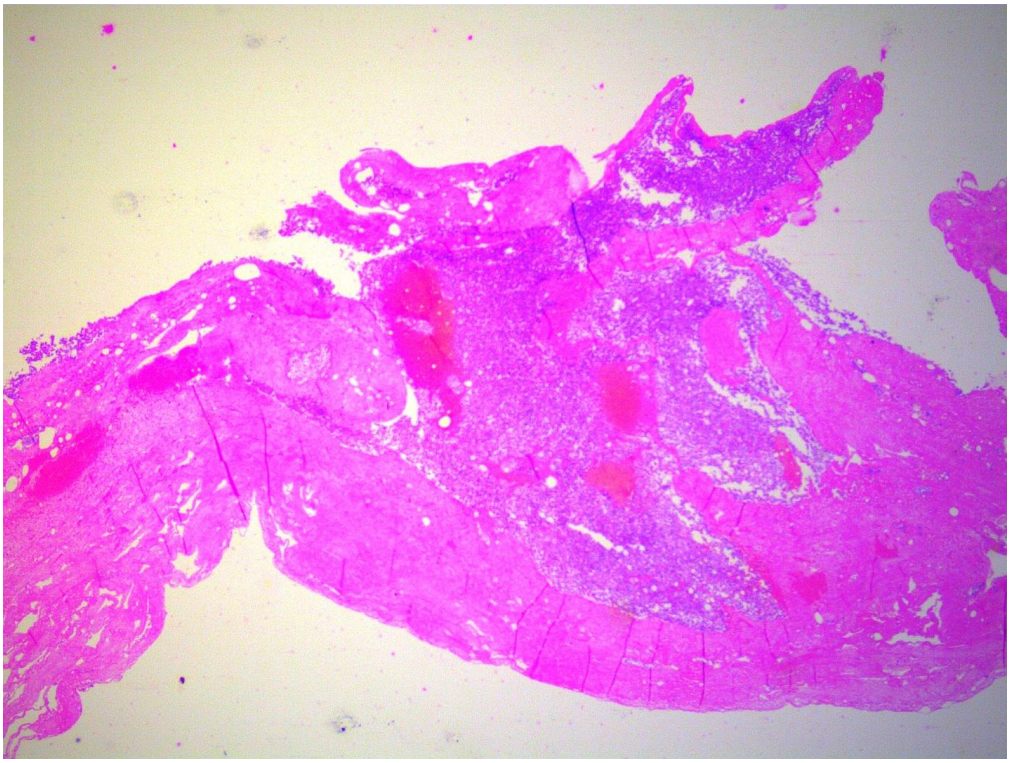

Fig 7: Strips of acellular fibrinous material admixed with nodular aggregates and sheets of histiocytes and mesothelial cells (H&E x 100)

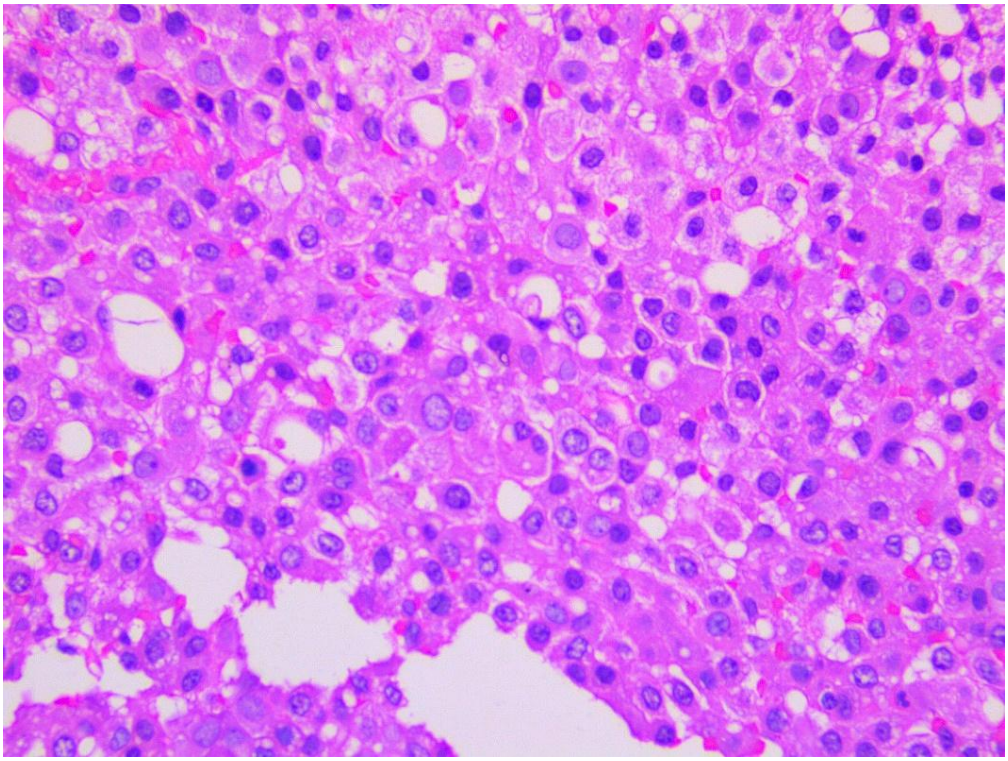

Fig 8: Sheets of mixed dual population of histiocytes and mesothelial cells (H&E x 400)

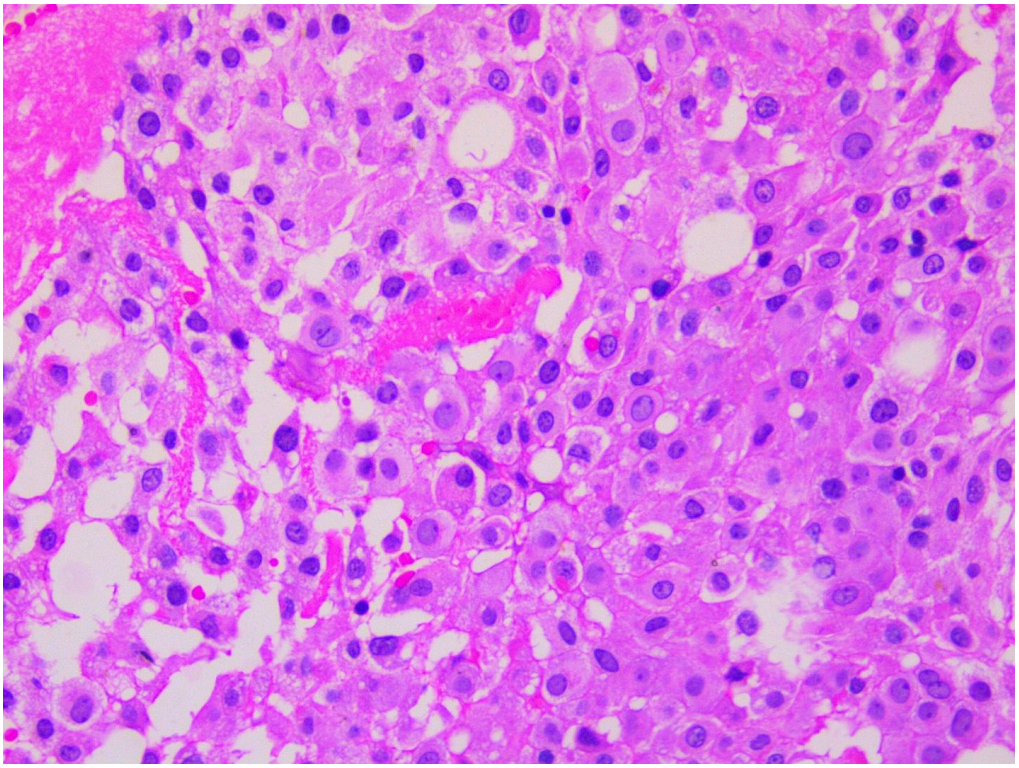

Fig 9: Sheets of mixed dual population of histiocytes and mesothelial cells (H&E x 400)

Immunohistochemistry:

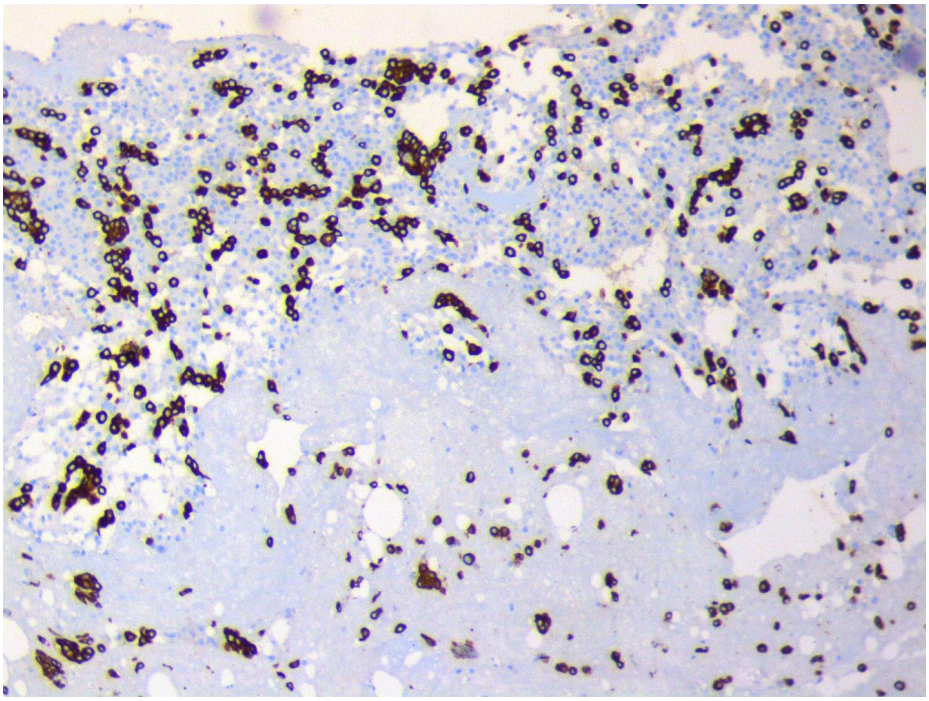

Fig 10: Cytokeratin immunostain – Staining the mesothelial cells (IHC x 100)

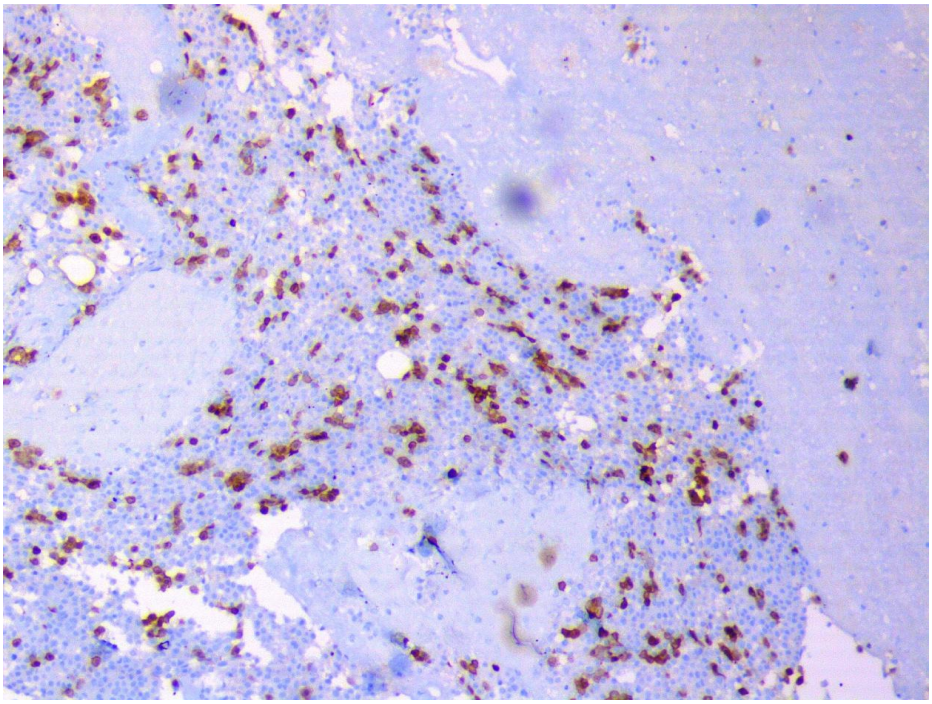

Fig 11: Calretinin immunostain – staining the mesothelial cells (IHC x 100)

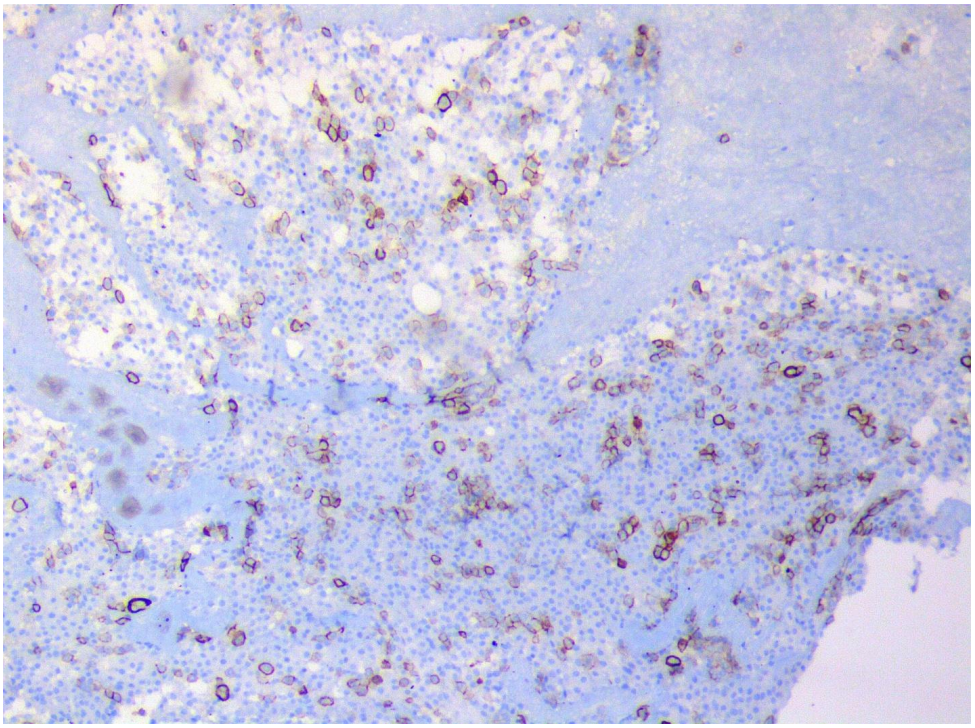

Fig 12: D2-40 immunostain – Highlighting the mesothelial cells(IHC x 100)

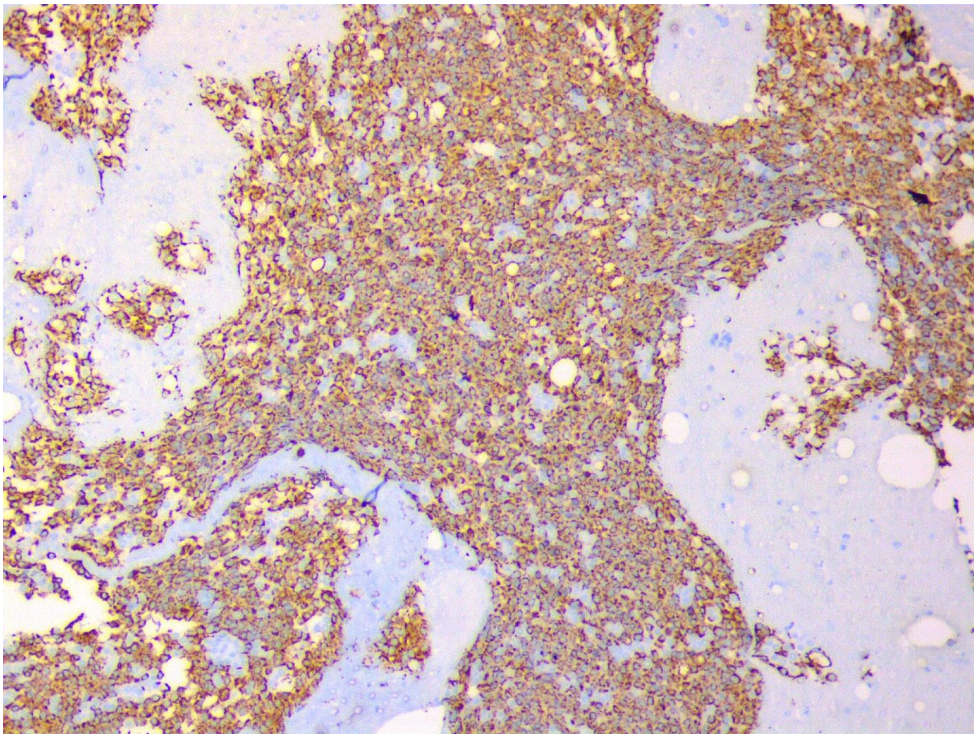

Fig 13: CD68 immunostain – Highlighting the Histiocytes (IHC x 100)

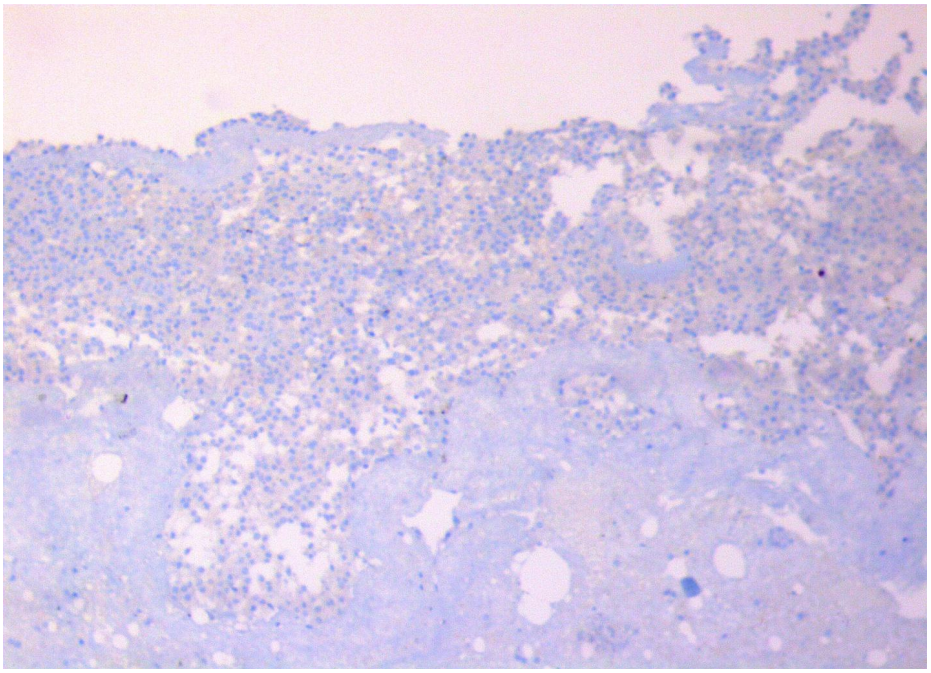

Fig 14: SOX10 immunostain – negative (IHC x 100)

Final Diagnosis:

Schwannoma, right paravertebral region.

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LEARNING POINTS:

1. Nodular histiocytic/mesothelial hyperplasia (NHMH) is a benign proliferative process composed predominantly of small nodular aggregates of histiocytes with scattered mesothelial cells.
2. This is most often incidentally detected.
3. Other names: Nodular mesothelial hyperplasia, Mesothelial/monocytic incidental cardiac excrescence (Heart)
4. Sites of occurrence: Any mesothelial site- Lung, pleura, hernial sac, pericardium and peritoneum.
5. Pathophysiology: Multifactorial**.** Trauma, tumor or inflammation leads to histiocyte / mesothelial expression of CD34 and adhesion molecules, which leads to aggregates of histiocytes and mesothelial cells through cell-cell interaction.

6. Microscopy:
    - Compact nodular collections of cohesive polygonal to oval histiocytes with indistinct cell borders and moderate amounts of eosinophilic to foamy cytoplasm
    - The nuclei of the histiocytes are oval with inconspicuous nucleoli
    - Mitoses may be present but there are no atypical mitoses
    - Admixed amongst the histiocytes are scattered bland cuboidal to polygonal cells with moderate cytoplasm, that are immunopositive for cytokeratin and calretinin, indicating their mesothelial origin
    - Hemosiderin laden macrophages may be present
7. Immunohistochemistry:
    - Mesothelial cells: positive for cytokeratin, calretinin, D2-40, WT-1 and other mesothelial markers.
    - Histiocytes: positive for CD68 and CD163.
8. Differential diagnosis:
    - Reactive / florid mesothelial hyperplasia
    - Mesothelioma
    - Metastatic adenocarcinoma / carcinoma

9. Key thing to remember
    - NHMH is considered a reactive process; Can be mistaken for a neoplastic process (both primary and metastatic) and accurate diagnosis can be potentially challenging, particularly in small biopsies.
    - Awareness of the existence of NHMH and awareness of its benign nature helps prevent a diagnosis of malignancy.

REFERENCES:

1. Chikkamuniyappa S, Herrick J, Jagirdar JS. Nodular histiocytic/mesothelial hyperplasia: a potential pitfall. Ann Diagn Pathol. 2004 Jun;8(3):115-20.
2. Kyra B. Berg, Peter D. Liebling, Melanie J. Kubik, Richard Attanoos, Francoise Galateau-Salle, Victor Roggli, Mark Wick, Andrew M. Churg, Pleural nodular mesothelial/histiocytic hyperplasia associated with syphilis, Human Pathology: Case Reports, Volume 13, 2018, Pages 18-20, ISSN 2214-3300,
3. Nicolas MM, Nazarullah A, Jagirdar JS. Nodular histiocytic and mesothelial hyperplasia. Int J Surg Pathol. 2011 Dec;19(6):781-2.