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Original Research Paper

Histopathology

CLINICOPATHOLOGICAL SPECTRUM OF SCHWANNOMAS AT DIVERSE ANATOMICAL SITES: A RETROSPECTIVE CASE SERIES OF SIX PATIENTS

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ABSTRACT **Background:** The symptoms produced by a schwannoma often depend on its anatomical location, while its microscopic appearance is usually more consistent. This case series describes the clinical and histopathological findings in six schwannomas arising at different sites. **Methods:** Histopathology records from January 2023 to February 2026 were reviewed retrospectively. Patient age and sex, presenting features, tumour site, histomorphology and S-100 immunoreactivity were recorded. **Results:** The patients ranged from 14 to 56 years of age. The lesions involved the neck, lateral pharyngeal wall, retroperitoneum adjacent to the psoas muscle, wrist and finger, and scalp. All tumours showed Antoni A and Antoni B areas in variable proportions, and Verocay bodies were seen in four cases. The retroperitoneal tumour had cystic degeneration and vascular hyalinisation and was diagnosed as ancient schwannoma. Strong, diffuse S-100 immunoreactivity was present in all six cases. **Conclusion:** Clinical presentation varied with tumour location, but the histological findings remained characteristic across the series. Degenerative changes in a deep-seated ancient schwannoma should be interpreted with care to prevent an erroneous diagnosis of malignancy.

KEYWORDS : Antoni A; Antoni B; ancient schwannoma; S-100 protein; peripheral nerve sheath tumour

INTRODUCTION

Schwannoma, also known as neurilemmoma, is a usually benign peripheral nerve sheath tumour derived from Schwann cells. Most lesions are encapsulated and slow growing, and complete excision is generally associated with an excellent outcome [1].

These tumours can arise wherever peripheral nerves are present. Superficial lesions are commonly noticed as painless, gradually enlarging swellings, whereas tumours in the pharynx or retroperitoneum may remain unrecognised until they produce pressure-related symptoms or are detected on imaging [2,3].

The diagnosis is primarily morphological. Conventional schwannoma contains compact Antoni A areas and less cellular Antoni B areas. Nuclear palisading and Verocay bodies are most evident in Antoni A regions, while Antoni B regions have a looser, often myxoid stroma [1,4].

Long-standing lesions may develop cyst formation, haemorrhage, stromal hyalinisation and degenerative nuclear atypia, giving rise to the ancient variant. Recognition of this pattern is particularly important in a deep-seated mass because degenerative atypia can otherwise raise an unwarranted concern for malignancy [1,4].

Diffuse S-100 protein expression supports Schwann-cell differentiation, especially when the histological differential diagnosis includes other spindle-cell tumours [1,5].

We reviewed six histologically confirmed schwannomas to examine how differences in anatomical site influenced their clinical presentation and to document the corresponding morphological and immunohistochemical findings.

MATERIALS AND METHODS

This retrospective case series was undertaken in the Histopathology Section, Department of Pathology, Chhattisgarh Institute of Medical Sciences (CIMS), Bilaspur, Chhattisgarh, India. Histopathology records from January 2023 to February 2026 were searched for cases diagnosed as schwannoma. Six histopathologically confirmed cases were identified and included. Specimens with inadequate tissue or an inconclusive diagnosis were excluded.

DATA COLLECTION

Age, sex, presenting complaint and tumour location were obtained from the available records. The histological sections and recorded S-100 immunohistochemistry findings were then reviewed for each case.

Histopathological Examination

All specimens had been fixed in 10% neutral buffered formalin, processed routinely and embedded in paraffin. Haematoxylin and eosin (H&E)-stained sections were assessed for encapsulation, the relative proportions of Antoni A and Antoni B areas, nuclear palisading, Verocay bodies and degenerative change.

Immunohistochemistry

Available S-100-stained sections were reviewed in all six cases to support Schwann-cell differentiation.

Case presentations

Case 1: A 24-year-old man had a painless, mobile swelling at the nape of the neck. The tumour was predominantly composed of Antoni A tissue, with conspicuous nuclear palisading and Verocay bodies.

Case 2: A 14-year-old girl was evaluated for dysphagia caused by a mass on the lateral pharyngeal wall. Sections showed an encapsulated spindle-cell tumour with the typical architecture of schwannoma.

Case 3: A 56-year-old man had a retroperitoneal cystic mass located between the left psoas muscle and the left abdominal wall. Histology showed prominent Antoni B areas accompanied by cystic degeneration and vascular hyalinisation, supporting a diagnosis of ancient schwannoma.

Case 4: A 41-year-old man presented with nodules over the left wrist and middle finger. The sections contained

alternating Antoni A and Antoni B areas, with focal Verocay body formation.

Case 5: A 32-year-old woman had a slow-growing, painless parietal scalp swelling. The encapsulated tumour consisted mainly of Antoni A tissue with focal Antoni B change and Verocay bodies. Significant atypia and mitotic activity were not seen, and the tumour cells showed strong, diffuse S-100 immunoreactivity.

Case 6: A 15-year-old boy presented with a painless occipital scalp swelling that had enlarged gradually. Both Antoni A and Antoni B areas were present, along with Verocay bodies. The nuclei had inconspicuous nucleoli and showed only minimal atypia.Global Journal for Research Analysis

Figure 1. Gross specimen showing a solid, well-circumscribed, encapsulated lesion.

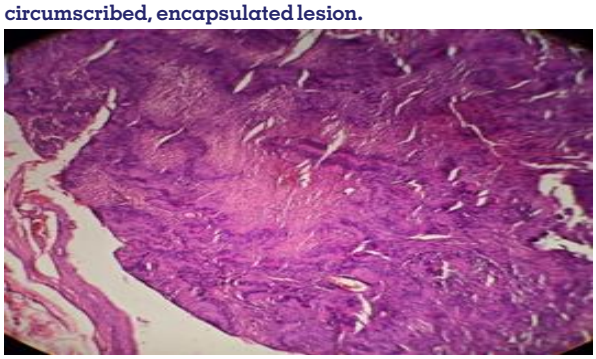
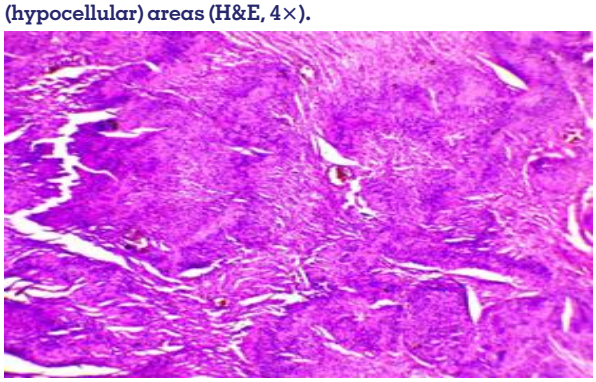


Figure 2. Antoni A (hypercellular) and Antoni B (hypocellular) areas (H&E, 4×).



RESULTS

Table 1. Clinicopathological features of the six casesGlobal Journal for Research Analysis

Case	Age/Sex	Location	Clinical Features	Variant	S-100 IHC
1	24/M	Neck	Painless swelling	Classic	Strong diffuse positive
2	14/F	Pharyngeal wall	Dysphagia	Classic	Strong diffuse positive
3	56/M	Retroperitoneum adjacent to left psoas	Retroperitoneal cystic mass	Ancient	Strong diffuse positive
4	41/M	Wrist and finger	Nodules	Classic	Strong diffuse positive
5	32/F	Scalp	Painless scalp swelling	Classic	Strong diffuse positive
6	15/M	Scalp	Painless scalp swelling	Classic	Strong diffuse positive

Histopathological findings

All six tumours showed Antoni A and Antoni B areas, although their relative proportions differed between cases.

- Compact spindle cells and nuclear palisading were most readily appreciated in the Antoni A areas.
- The Antoni B areas were less cellular and had a loose, myxoid appearance.
- Verocay bodies were present in Cases 1, 4, 5 and 6. The retroperitoneal tumour (Case 3) differed from the remaining lesions because of its prominent cystic degeneration and vascular hyalinisation, features consistent with ancient schwannoma.

Immunohistochemistry

Strong, diffuse S-100 immunoreactivity was observed in all six tumours.

DISCUSSION

The clinical presentation varied considerably across the six cases. Superficial tumours of the neck, wrist, finger and scalp were noticed mainly as painless swellings, whereas the lateral pharyngeal wall lesion produced dysphagia. The retroperitoneal tumour was detected as a cystic mass. These differences appear to reflect the anatomical location and depth of the lesion rather than a change in its basic histological pattern [2,3].

The pharyngeal lesion is clinically noteworthy because even a benign, slowly growing tumour at this site can interfere with swallowing. By contrast, the superficial lesions remained relatively unobtrusive. The retroperitoneal tumour posed a different problem: its deep location and cystic appearance could suggest a range of retroperitoneal neoplasms before histological examination [3].

Case 3 showed the changes expected in an ancient schwannoma, particularly cystic degeneration and vascular hyalinisation. Such lesions may also display marked degenerative nuclear atypia. This atypia should be assessed together with tumour architecture and mitotic activity; in the absence of increased mitoses and other malignant features, it does not by itself indicate a malignant peripheral nerve sheath tumour [1,4].

Despite the differences in age, site and presentation, the tumours retained the conventional morphological features of schwannoma. Verocay bodies were demonstrable in four cases, while their absence in the other two did not preclude the diagnosis. Strong, diffuse S-100 immunoreactivity in every case further supported Schwann-cell differentiation [1,5]. The principal limitations are the small number of cases, retrospective record-based data and the absence of long-term follow-up information. The findings should therefore be viewed as a descriptive account of the range encountered in routine histopathology practice rather than as an estimate of disease frequency.

CONCLUSION

In this series, tumour location determined the clinical presentation, whereas the microscopic and immunohistochemical findings remained consistent. The retroperitoneal ancient schwannoma represented the main diagnostic challenge because of its cystic and degenerative changes. Careful assessment of the overall architecture, mitotic activity and S-100 expression can help avoid an erroneous diagnosis of malignancy.

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