Original Research Paper

Volume - 16 | Issue - 08 | August - 2026 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Histopathology

HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL ANALYSIS OF A SOFT TISSUE SARCOMA IN PHARYNX OF A 4-YEAR-OLD MALE CHILD

Harsh Shah	Pediatric Pathology Fellow, Laboratory Medicine Department, Bai Jerbai Wadia Hospital
Leena Patwardhan	Consultant pathologist, Laboratory Medicine Department, Bai Jerbai Wadia Hospital
Sunita Sharma	Consultant Pathologist, Laboratory Medicine Department, Bai Jerbai Wadia Hospital

ABSTRACT Rhabdomyosarcoma (RMS) is a malignant soft tissue tumor of muscle origin. Head and neck are the most common site of occurrence. It accounts to nearly 50 % of all soft tissue malignancy in childhood. The following case report describes a detailed approach to a case of a 4 years old male child with pharyngeal soft tissue mass with histopathological and immunohistochemical analysis.

KEYWORDS : Sarcoma, Pharyngeal, Soft tissue, Immunohistochemistry

INTRODUCTION:

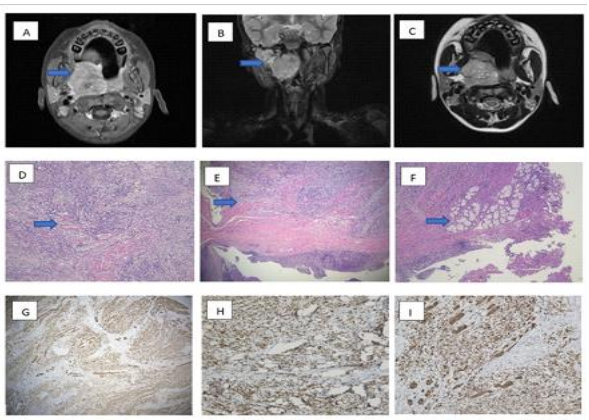
Rhabdomyosarcoma (RMS) is a malignant mesenchymal neoplasm. It is of skeletal muscle origin with varying degrees of differentiation.[1] It is most commonly seen in the head and neck region and less commonly in the extremities.[2] Anatomically the head and neck RMSs are divided into 2 categories: Para-meningeal (RMS of the nose, paranasal sinuses, nasopharynx, middle ear, mastoid, infratemporal fossa, and pterygopalatine fossa) and non-parameningeal (including RMS of the scalp, orbit, parotid gland, oral cavity, oropharynx, and larynx)In the head and Neck region, the most frequently affected sites are paranasal Sinuses, orbit, neck and cheek tissues.[3] Oral RMS are rare.[4] Among the oral RMS, soft palate is more commonly involved.[2] We are presenting a case report of a parapharyngeal RMS in a 4-year-old male child with clinical, radiological, histopathological, and immunohistochemical findings to discuss the approach to diagnosis.

Case Report:

A 4 years old male child came with a complaint of mouth breathing with stridor since 1 month. MRI suggested a parapharyngeal mass on the right side completely obliterating the right nasopharynx and a part of right oropharynx. Surgery was performed to remove the mass in the nasopharynx. (Figure 1- A, B and C) We received whitish tissue bits altogether measuring 1.5 cm for histopathological analysis.

Microscopy revealed a part of tonsillar tissue lined by oral stratified squamous epithelium. Skeletal muscles below the tonsillar tissue show invasion by hyper cellular tumor tissue. Tumor tissue is composed diffusely spread pleomorphic spindled to round cells with eosinophilic cytoplasm. These tumor cells are infiltrating in the surrounding salivary glandular tissue and skeletal muscles. The nuclei are irregular, hyperchromatic with inconspicuous nucleoli. Mitotic activity is 3 to 4/10 hpf. Background shows focal necrotic areas. Histomorphology features were of a round cell tumor. (Figure 1-D, E and F)

Immunohistochemical (IHC) examination, the tumor cells positive for Myogenin and Desmin with high Ki67 activity. (Figure 1- G, H and I) Tumor cells were negative for CD45, CD3, CD20, ALK 1, Pan CK, Nkx2.2 and Synaptophysin. IHC findings were compatible with the diagnosis of Rhabdomyosarcoma.



Legends for Figure:

Figure1-A,B,C Right Parapharyngeal mass displacing right tonsil anteriorly with complete compression of nasopharyngeal and partial compression of oropharyngeal airway.

Figure 1-D,E,F Tonsillar tissue show invasion by tumor cells are infiltrating in the surrounding skeletal muscles;
E- These tumor cells are infiltrating in the surrounding salivary glandular tissue.

Figure-1 IHC: G-Myogenin- Nuclear positivity in tumor cells; H-Ki67 - High activity;
I- Desmin -Nuclear positivity in tumor cells and in skeletal muscle tissue.

DISCUSSION:

The incidence of RMS is highest in children of 1–4 years of age group, lower in children age group of 10–14 years, and lowest in age group of 15–19 years.[5] Commonly seen in the head and neck region. This was a case of Para meningeal RMS involving right side pharynx. Radiological investigations like MRI can detect these soft tissue density tumors and its relations to the adjacent normal structures affected by the tumor. Effective surgical resection of tumor is challenging in cases of RMS located in the head or neck region as there is involvement of other crucial structures in these locations. The diagnosis of RMS is confirmed through excision of the primary tumor and careful histopathological examination. Final diagnosis can be obtained through immunohistochemistry and molecular studies.

REFERENCES

1. Al-Khateeb T, Bataineh AB. Rhabdomyosarcoma of the oral and maxillofacial region in Jordanians: a retrospective analysis. Oral Surg Oral Med Oral Pathol Oral RadiolEndod2002;93:580–5.
2. Peters E, Cohen M, Altini M, Murray J. Rhabdomyosarcoma of the oral and paraoral region. Cancer 1989;63:963–6.
3. Durães GV, Jham BC, Mesquita ATM, dos Santos CRR, Miranda JL. Oral embryonal rhabdomyosarcoma in a Child: A case report with immunohistochemical analysis. Oral Oncol Extra. 2006;42:105–108.
4. Miloglu O, Altas SS, Buyukkurt MC, Erdemci B, Altun O. Rhabdomyosarcoma of the oral cavity: a case report. Eur J Dent. 2011;5(3):340-343.
5. França CM, Caran EM, Alves MT, Barreto AD, Lopes NN. Rhabdomyosarcoma of the oral tissues-two new cases and literature review. Med Oral Patol Oral Cir Bucal. 2006;11:136–140.