

Diagnosis of a Rhabdomyosarcoma in a Pediatric Dental Patient

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Introduction

-Rhabdomyosarcoma is the most common soft tissue tumor in children.¹

Signs and Symptoms: mass that swells and enlarges over time, headaches, trouble urinating, rhinorrhea.²

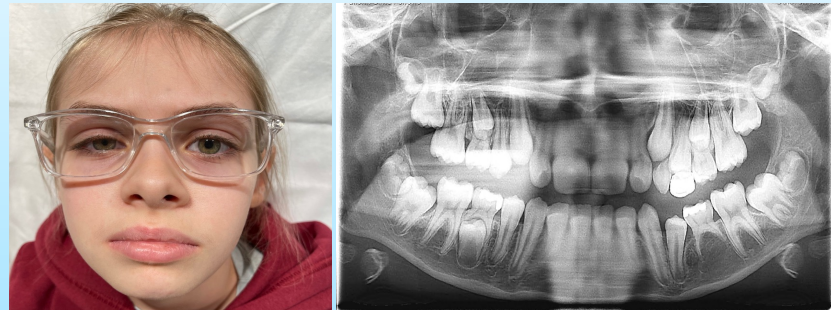
-Diagnosis: physical exam and health history, MRI, CT scan, PET scan, bone scan, lumbar puncture.²

-Staging: depends on the size and location of the tumor, in the body and whether or not it has spread.⁴

-Grade: is determined by how differentiated the cancer cells are upon microscopic examination.⁴

-Risk: in the context of rhabdomyosarcoma refers to a patient who does or does not have a pax/fox01 fusion gene.⁵

-Treatment:- For rhabdomyosarcoma of the head and neck not near the eye or ear, chemotherapy and surgery may be used.² There are two fundamental subtypes of RMS, embryonal and alveolar, which function by different mechanisms²



Parents consented to use of patient photo

ENT Evaluation

Facial swelling was not found to be of odontogenic origin,

- Differential diagnosis : Horner syndrome, infection, mumps, or parotitis.
- Right side carotid space mass.
- Horner syndrome defined as the following:
 - small pupil (miosis) a notable difference in pupil size between the two eyes (anisocoria)
 - Little or delayed opening (dilation) of the affected pupil in dim light.
 - Drooping of the upper eyelid (ptosis) Slight elevation of the lower lid, sometimes called upside-down ptosis.³
- MRI was completed overnight and found to show concern for right side mass.
- IR biopsy was then indicated for further differentiated pathologic assessment.
- Core needle biopsy was performed and found to show spindle cell sarcoma that was undifferentiated.
- Patient then received chemotherapy, coupled with proton therapy to address the care

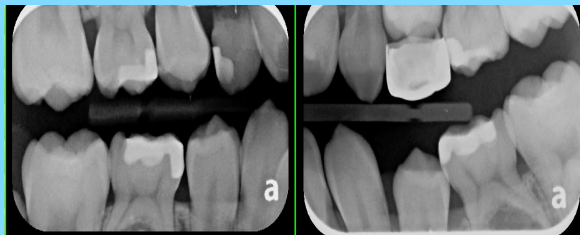
Case Presentation

10 year old female presented to the ED with history of headaches, right side facial swelling, and pain one month

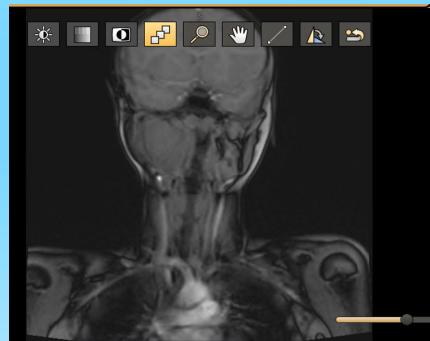
- EOE and IOE exam significant for facial swelling and eruption cyst on maxillary right canine.

-Dental Exam :

- All teeth in maxillary and mandibular right quadrants were negative to percussion, hygiene was deemed fair.
- Radiographs revealed no source of any odontogenic infection.



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Radiology Impression

Large mass predominantly involving the right carotid space with extension to the parapharyngeal and masticator space causing mass effect in the pterygoid muscles. The mass lesion abuts the right mandible without definite involvement and appears to extend along the carotid canal into the proximal right cavernous sinus anterior displacement and encasement of the right internal carotid artery with mild narrowing. Given patient age, findings are concerning for cervical neuroblastoma, other possibilities include lymphoma and teratoma.

Discussion/Conclusion

-Through treatment for cancer, patient was seen for active recalls and evaluated frequently:

-Interim therapeutic restorations were performed on permanent 6 year molars and maintained over the course of her treatment

- Hygiene was optimized over the course of chemotherapy.

- This patient was found to have **stage IIA and high risk** rhabdomyosarcoma, meaning that though it had spread to lymph nodes, the level of differentiation of the cancerous cells was not beyond excision with surgery, after chemotherapy.

- Patient favored embryonal subtype, which is more common in children under ten and occurs in the head and neck region.²

- Patient received chemotherapy with ifosfamide and doxorubicin

- After the patient completed her chemotherapy, she received a salvage surgery at the mayo clinic involving surgical excision of the residual tumor.

The Role of the Pediatric Dentist

The oral health professional plays an integral role in screening, guidance, and referral for more complex medical diseases.

Patients see their dentist more often than their physicians.

Furthermore, managing the sequela of side effects from cancer treatment, such as dry mouth and mucositis can play a huge role in quality of life and proper healing.

References

- (1) Resources from OncoLink | Treatment, R. (n.d.). *All about rhabdomyosarcoma*. Cancer
- (2) Resources from cancer.gov publications available at <https://www.cancer.gov/types/soft-tissue-sarcoma/patient/rhabdomyosarcoma-treatment-pdq>
- (3)Resources from the Cleveland clinic available @ <https://my.clevelandclinic.org/health/diseases/17836-horners-syndrome>
- (4)Resources from <https://www.nhs.uk/common-health-questions/operations-tests-and-procedures/what-do-cancer-stages-and-grades-mean/>
- (5) Resources from <https://www.cancer.org/cancer/rhabdomyosarcoma/detection-diagnosis-staging/staging.html>