PARAPHARYNGEAL AND RETROPHARYNGEAL SPACES: NORMAL ANATOMY AND CASE DISCUSSION.

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Background: An appreciation of the complex anatomy of potential spaces and fascial planes of the neck is vital to understanding lesions and their potential complications. The involvement of the parapharyngeal space (PPS) and the retropharyngeal space (RPS) poses significant diagnostic and therapeutic problems. The PPS extends from the skull base to the superior cornu of the hyoid bone, connecting posteromedially with the retropharyngeal space, inferiorly with the submandibular space, and laterally with the masticator space. The carotid sheath courses through this space into the chest. RPS lies between the visceral division of the middle layer of the deep cervical fascia around the pharyngeal constrictors and the alar division of the deep layer of deep cervical fascia posteriorly. PPS contains mainly fat and the pterygoid venous plexus, whereas the RPS contains retropharyngeal lymphatics.

Clinical and Radiologic Findings: We outline the normal anatomy of the PPS and the RPS on images derived from cone beam computed tomography (CBCT), medical computed tomography (CT), and magnetic resonance imaging (MRI) data sets. Then we present unique case studies exhibiting pharyngeal retention cyst in the tonsil, Tornwaldt cyst in the nasopharynx, nasopharyngeal carcinoma with invasion of the PPS, incidental retropharyngeal internal carotid arteries that can be mistaken for a pseudomass, large goiter with retropharyngeal extension, retropharyngeal air in barotrauma, and retropharyngeal lymphadenopathy occupying the PPS.

Discussion/Conclusions: Displacement of the PPS laterally implicates a lesion in the pharyngeal mucosa posteriorly, the masticator space anteriorly, and the carotid space anterolaterally. Medial displacement implies that the lesion resides in the parotid space. Infection may enter the retropharyngeal airspace directly, as with traumatic perforations of the posterior pharyngeal wall or esophagus, or indirectly, from the parapharyngeal space A fundamental skill set is required for the diagnosis and management of these potentially life-threatening illnesses.

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POTENTIAL IDENTIFICATION OF PREVIOUSLY UNRECOGNIZED GARDNER SYNDROME DURING RADIOLOGIC EXAMINATION: A CASE REPORT.

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Background: Familial adenomatous polyposis coli (FAP) is an autosomal dominant inherited disorder characterized by the development of multiple colonic adenomas with high risk for malignant transformation. FAP is caused by mutation of the adenomatous polyposis coli (APC) gene, a tumor suppressor. Several *APC* codon mutations result in a spectrum of intra- and extra-colonic manifestations. Gardner syndrome is a subset of FAP with potential extraintestinal findings, including epidermoid and sebaceous cysts, lipomas, supernumerary and impacted teeth, odontomas, jaw osteomas, and desmoid tumors/desmoplastic fibromas. Desmoplastic fibromas are benign aggressive neoplasms with potential tissue morbidity.

Discussion/Conclusions: A 15-year-old Caucasian male was referred to the oral and maxillofacial radiology clinic for radiologic evaluation of a left posterior mandibular radiolucency. The patient complained of pain at the site. His medical and dental histories was positive for biopsy of multiple epidermoid cysts, a fibrous tissue mass on the lower back, and 2 odontomas. Thus far, the patient had not been identified to be at risk for Gardner syndrome. Panoramic and cone beam computed tomography (CBCT) radiographs were made and showed nonuniform hyperdensities throughout the jaws, impacted teeth, and a well-defined, multilocular, radiolucent lesion at the angle of the left mandible demonstrating expansion. Impressions favored a benign aggressive entity of the left mandibular angle, and biopsy was recommended. The biopsy results were consistent with desmoplastic fibroma. Surgical resection was performed. Based on the collective findings, the diagnosis of Gardner syndrome was proposed. The patient was referred for genetic counselling and genetic testing for himself and his immediate family members. The results of molecular diagnosis are pending. Identification of FAP-related clinical and radiographic manifestations is crucial to early identification of FAP, which has important considerations in periodic evaluation for colon neoplasms and surgical prophylaxis. Early referral by an attentive radiologist can increase the opportunity for more effective disease management.

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RADIOGRAPHIC BONE CHANGES IN MULTIPLE MYELOMA PATIENTS WHO DEVELOPED MEDICATION-RELATED OSTEONECROSIS OF THE JAW: A CASE CONTROL STUDY.

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Background: Medication-related osteonecrosis of the jaw (MRONJ) is a severe adverse effect caused by antiresorptive medications, which are used for multiple myeloma (MM) patients. Currently, new evidence suggests that there are early radiographic changes in the bone of patients that eventually will develop into clinical MRONJ. The detection of early bone changes may be important in early diagnosis and prevention of MRONJ by drug cessation.