Design: Case 1 involved a 61-year-old man who presented with nasal obstruction and bilateral polypoid sinonasal masses. Intraoperative consultation showed a pleomorphic neoplasm with scattered large atypical spindle cells resembling a high-grade sarcoma. Case 2 involved a 46-year-old man who presented with bilateral maxillary chronic sinusitis with mass formation, clinically suggestive of lymphoma. Excision showed large irregular spindled histiocytes with abundant cytoplasm. Case 3 involved a 36-year-old woman who presented with left-sided chronic otalgia. Imaging revealed an external auditory canal mass extending to the middle ear. Case 4 involved a 20-year-old woman with complaints of nasal swelling and epistaxis for more than 8 months. Imaging showed a 2.8-cm polypoid mass in the anterior nasal septum.

Results: All cases displayed large atypical spindled histiocytes resembling fibrohistiocytic or myofibroblastic neoplasms. Emperipolesis was seen. The large atypical cells were positive for S100, CD68, and CD163, confirming a diagnosis of extranodal RDD. No malignancy was identified. Case 3 showed RDD coexisting with cholesteatoma.

Conclusions: Owing to its rarity and variable clinical presentations, a diagnosis of extranodal RDD is seldom considered. Additionally, extranodal RDD can morphologically mimic other spindle cell neoplasms, especially at intraoperative consultation, thus creating diagnostic and therapeutic challenges. Correlation of radiologic findings with histologic features will help with diagnosis.

Intraoperative Use of Wide-Field Optical Coherence Tomography to Evaluate Tissue Microstructure in the Oral Cavity and Oropharynx

(Poster No. 170)

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Context: Involvement of the deep margins represents a significant challenge in the treatment of oropharyngeal cancer. Given the practical limitations of frozen section analysis, a need exists for real-time, nondestructive intraoperative margin analysis. Wide-field optical coherence tomography (WF-OCT) has been evaluated as a tool for high-resolution adjunct margin analysis in breast surgery. The clinical application of WF-OCT in head and neck surgery has not been explored.

Design: This was a prospective, single-center feasibility study to evaluate the utility of WF-OCT (OTIS, Perimeter Medical Imaging AI, Inc) to visualize microstructures at the margins of excised oral and oropharyngeal tissue. Adults undergoing primary ablative surgery of the oral cavity or oropharynx for squamous cell carcinoma were treated according to standard surgical care. Freshly resected specimens were imaged with high-resolution WF-OCT before routine pathology. Interdisciplinary interpretation was performed to correlate digitized pathology slides and WF-OCT images.

Results: Sixty-nine specimens from 53 patients were collected and scanned (42 tonsillar tissue, 17 base of the tongue, 4 buccal tissue, 3 mandibular, 3 other). Forty-one specimens were malignant, and 28 were benign. Correlation analysis between WF-OCT images and H&E slides demonstrated visual differentiation among mucosa, submucosa, muscle, dysplastic, and benign tissue in real time.

Conclusions: WF-OCT was able to scan specimens and did not interfere with surgical procedures or final pathology. Microarchitectural features observed in WF-OCT images were correlated with permanent histology with fidelity. Formal clinical studies investigating use of WF-OCT for intraoperative analysis of deep margins in head and neck surgery are warranted.

Oncocytic Epithelial Myoepithelial Carcinoma Misdiagnosed as an Inverted Sinonasal Papilloma

(Poster No. 171)

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An 82-year-old man presented with a decade-long history of right sinus congestion, nasal discharge, and facial pressure. Head CT revealed a right nasal cavity mass with extension into the nasolacrimal duct. The mass was initially diagnosed as an inverted papilloma, and the patient underwent endoscopic resection of the mass. Histopathology revealed an oncocytic tumor with 2 distinct cell populations arranged in interconnecting nests, trabeculae, tubules, and glandlike structures (Figure 1.171, A through C). The biphenotypic tumor was composed of oncocytic luminal cells with an attenuated abluminal myoepithelial cell layer. Immunohistochemistry further accentuated this dual phenotype; the myoepithelial outer cell layer was highlighted by p40 (Figure 1.171, D), p63, SMA (Figure 1.171, E), and cytokeratin 5/6 immunostains. The oncocytic luminal cells were largely CD117 positive (Figure 1.171, F). Based on the morphology and immunophenotype, a diagnosis of epithelial myoepithelial carcinoma, oncocytic type, was rendered. Oncocytic epithelial myoepithelial carcinoma (OEMCa) is a rare variant of epithelial myoepithelial carcinoma (EMCa), comprising less than 10% of all EMCas. OEMCas are indolent in nature and have a later age of onset than conventional EMCas. Diagnosis is particularly challenging on smaller biopsies, as OEMCas are often mistaken for other oncocytic neoplasms, such as the oncocytic variant of Schneiderian sinonasal papilloma. The presence of a continuous layer of myoepithelial cells around oncocytic tumor nests is a helpful clue in reaching a definitive diagnosis.