docked out owing to distance traveled and did not think the device was helping. Two subjects experienced a dead battery during the study.

Conclusions. The GN offers patients a nondrug noninvasive option for the treatment of xerostomia. It is a custom-made removable device which patients can wear up to 10 minutes per hour. The GN appears to be safe, and patients seem to tolerate it well.


This research collected data for several parameters for up to 10 years for the private surgical oral pathology practice associated with the School of Dental Medicine, University of Pittsburgh. In 2009, the practice rendered a diagnosis on 2,179 surgical biopsies, 15 cytologies for candidiasis, 21 external consultations, and 44 internal ear-nose-throat pathology consultations, for a total of 2,253 procedures. Of the biopsies, 64 were dermatopathology cases (10 year average 42) and 48 were malignancies (10 year average 34). Over 10 years, the practice saw an average of 1,725 surgical biopsies/year, with a general upward trend. The most common diagnoses in 2009 were: irritation fibroma (7.4%), hyperkeratosis (6.4%), giant cell fibroma (5.7%), epithelial dysplasia (5.5%), radicular granuloma (4.7%), mucocele (4.7%), radicular cyst (3.6%), and papilloma (3.1%). Of periapical (PA) lesions in 2009, 55% were granulomas. 72% of PA lesions were from the maxilla; the maxillary incisors accounted for 31% of all submitted PA lesions. Over the past 5 years, the practice had an average of 165 contributors, 94% from Pennsylvania. The mean number of biopsies each submitted for 2009 was 11.6 (range 1-156, median 3, mode 1). In 2009, 51% of contributors who sent >2 cases were oral surgeons, who contributed 84% of the cases. There was an average annual gain of 50 contributors, and a loss of 45. For one oral pathologist in 2009, billings were mostly for level IV (59%), followed by level V (29%) and level III (4%). Collections were most commonly from Blue Cross/Blue Shield (59%), followed by cash (16%). Medicare accounted for 5% of collections.

CANADIAN IMMUNOHISTOCHEMISTRY QUALITY CONTROL (CIQC): AN ACADEMIC PROGRAM PROVIDING PROFICIENCY TESTING TO CANADIAN CLINICAL IMMUNOHISTOCHEMISTRY LABORATORIES. M. Copete, J. Garratt, B. Gilks, D. Pilvadzic, E. Torlakovic. U Saskatchewan, Lions Gate Hospital, BC, U British Columbia, General Jewish Hospital and McGill U, Que, U Toronto, Ont.

External quality assurance (EQA) is an important component of quality control/quality assurance measures for clinical laboratories, and it includes immunohistochemistry (IHC) testing. Although it is essential for proper IHC test calibration, only a few programs offer proficiency testing (PT) to clinical laboratories. Recently, the Canadian Immunohistochemistry Quality Control (CIQC) was created to support EQA for clinical IHC testing. It is an academic program affiliated with the Canadian Association of Pathology and provides several challenges in both class I and class II IHC tests. Tissue microarray (TMA) design is used by the CIQC for PT. Ten runs have been completed since inception. Unstained slides from TMA blocks are sent to participants. The stained slides are returned to the CIQC, which scans all results for digital/virtual microscopy, performs expert assessment by a team of pathologists, and performs statistical analysis to provide information on kappa values and concordance with reference results. Although class II test results appear to be satisfactory, class I test results show very heterogeneous levels of success with different IHC tests/antibodies, ranging from <40% to near 90% with most tests being suboptimal. More extensive PT testing needs to be developed for class I tests, which account for a great majority of clinically used IHC tests.


IHC tests are generally classified as class I and class II tests. Class I test results are used by pathologists in conjunction with clinical and morphologic findings to determine cell differentiation. Class II tests are prognostic and predictive markers, which are used by clinicians to stratify patients for appropriate therapies. Pankeratin (pan-Ck) and low-molecular-weight keratin (LMWCK) tests are the most commonly used class I tests to support evidence for epithelial differentiation. Canadian Immunohistochemistry Quality Control (CIQC) is a new provider of proficiency testing (PT) for Canadian clinical IHC laboratories. So far, CIQC has had 2 challenges in including PT for pan-Ck and LMWCK. CIQC has designed a 70-sample tissue microarray (TMA) for run 1 and a 30-sample TMA for run 8. Run 1 had 13 participants and run 8 had 61 participants. In both runs, >40% of laboratories produced poor results, indicating that about half of clinical laboratories have inappropriately calibrated IHC tests for most common markers of epithelial differentiation. Further analyses indicated that inappropriate selection of external positive controls and samples for optimization of these tests were the problem. Therefore, proper selection of positive control material and material for optimization of the tests is critical for proper clinical application of class I IHC tests.

NEONATAL TEETH IN 6-WEEK-OLD BABY WITH BILATERAL CLEFT LIP AND PALATE. CASE REPORT AND REVIEW OF THE LITERATURE. C. Haberland, J. Persing. Yale—New Haven Hospital, Conn.

The presence of teeth at birth or shortly thereafter is rare. We present a 6-week-old Hispanic baby girl with a nonsyndromic bilateral cleft lip and palate with a neonatal tooth on the right maxilla adjacent to the cleft. Clinically, the tooth had yellow dysplastic enamel, gingival inflammation, and mobility. An occlusal radiograph showed a calcified tooth-like structure lacking a root, and a second outline of a tooth structure apical to it. Owing to feeding difficulties, the tooth was extracted. One week later, the patient presented with an erupted second tooth-like structure at the previous extraction site. This tooth was also extracted. Review of the literature showed that natal teeth occur more frequently (3:1) than neonatal teeth. Overall, the incidence of natal/neonatal teeth is between 1:8,000 to 1:10,000 in patients without orofacial clefts. However, natal/neonatal teeth have been reported to occur in 2% of patients with unilateral cleft lip and palate and in 10% of patients with bilateral cleft lip and palate. Clinically, the teeth usually appear with an opaque yellow-brown irregular enamel and are mobile. Histologically, they present with dysplastic and/or hypomineralized enamel, irregular dentinal tu-
bules, and incomplete root formation. In ~9% of patients, a second tooth-like structure may develop later. In general, extraction of natal/neonatal teeth is indicated if there are feeding difficulties and/or soft tissue injuries. Degree of mobility and risk of aspiration have been regarded to be reasons for extraction; nevertheless, to date there are no reported cases of aspiration, only cases of spontaneous exfoliation. Due to an increase in incidence of neonatal teeth in patients with orofacial clefts, adequate diagnosis and management are important.

Aggressive osteoblastoma is a rare primary bone neoplasm with the potential for local invasion and recurrence, but not for metastatic spread. Very few well documented cases have been reported in the jaws. A 25-year-old man presented with a gradually enlarging palatal mass of several months’ duration. He reported that though generally asymptomatic, the lesion had recently become increasingly painful. The diagnosis from the incisional biopsy was “osteoblastic neoplasm.” One month later, the patient underwent a partial maxillectomy. Histopathologic examination of the resection revealed a proliferation of large epithelioid cells with eccentric nuclei and prominent nucleoli associated with broad irregular deposits of osteoid and trabeculae of bone. Mitotic figures were uncommon and typical in appearance, whereas osteoclast-like giant cells were readily identifiable within an associated loose fibrovascular stroma. A diagnosis of aggressive osteoblastoma was made. Eight months after surgery, there was no evidence of recurrence. Earlier reports of gnathic aggressive osteoblastoma are reviewed and the distinguishing features from conventional osteoblastoma or osteoblastoma-like osteosarcoma discussed.


Fibrous dysplasia (FD) is an unusual developmental condition caused by postzygotic mutations of the GNAS1 gene, resulting in persistent activation of the G protein–stimulatory subunit. Activation of the G protein complex leads to inappropriate maturation of osteoblasts and deposition of fibro-osseous tissue in place of bone. Various extraskeletal manifestations may also be seen. Diagnosis requires close correlation primarily between clinical and radiographic findings, with histologic confirmation desirable in some cases. Craniofacial FD is characterized by involvement of the maxillofacial bones and skull. The clinical presentation is frequently nonspecific, consisting of a painless facial swelling. Moreover, difficulties are often encountered in radiographic diagnosis because of overlapping anatomy and the varied radiographic appearance of FD in this region. We report an 11-year-old girl who presented with complaints of sinus symptoms and progressive facial asymmetry. Intraoral examination revealed marked expansion of the right maxilla. Panoramic imaging showed an indistinct radiopacity causing partial obliteration of the maxillary sinus. On cone-beam computerized tomography (CBCT), a classic ground-glass change to the bone was noted with extension into the antrum, zygoma, sphenoid bone, and orbit. Biopsy confirmed a benign fibro-osseous lesion composed of fibrous stroma with trabeculae of curvilinear woven bone.

Owing to the extensive nature of this patient’s FD, nonsurgical treatment options are being explored. Craniofacial FD can present challenges from both a diagnostic and a management perspective. This case highlights the utility of advanced imaging, including CBCT, in evaluation and therapeutic planning for patients with this condition.


Any amount of fibrosis in fatty marrow is pathologic, but occasional cancellous jawbone curettings show only viable bone and dense collagen, similar to that seen with periapical scars and fibrous mucosal scars. Some patients have reported dramatic chronic pain reduction with removal of the fibrosis. We describe a previously unreported lesion within jawbones. 321 cases and 100 controls (normal bone) were identified from a database of archival biopsies. Lesions were usually in the posterior jaws and in patients with an average age of 48 years; 76% were female (controls: average age 43 years, 69% female). At least 51% of lesions were located in previous surgical sites, 37% were painful; 83% showed ischemic/inflammatory changes in adjacent marrow, but this was mild. The fibrosis was dense and almost completely avascular in 84% of cases; 43% had ≥1 focus of infiltration by lymphocytes. Attached bone was always viable, and the etiology was not microscopically obvious except that 14% were associated with intramédullary foreign material, usually amalgam. Control cases showed no fibrosis of any type and were not associated with obvious ischemic or inflammatory conditions; differences between each lesional feature and controls were statistically significant at a level of P > .0001 (Pearson chi-square analysis).

Conclusion. Focal regions of dense avascular fibrosis do occur within medullary spaces, possibly secondary to improper healing after surgery, but the etiology is unclear. We propose “intramedullary fibrous scar” as the appropriate diagnostic term. Clinical significance is unclear, but a sizeable proportion of cases are associated with pain, and therefore, this does not appear to be equivalent to the periapical scar.


Objectives. To identify the salient radiographic features associated with osteonecromesiosis of the jaws related to oral bisphosphonate (BP) use (BONJ). A database was created and maintained at our institution over the past 3 years and was sponsored by Merck & Co.

Study design. A total of 35 well documented cases of BONJ were considered in the study. Radiographic images were obtained from the 29 cases that involved either jaw or adjacent tissues. Necrotic tori or myelohyoid ridges in x-rays from 6 patients were not considered to be relevant. Panoramic radiographs were the most common images evaluated with only a few periapical films or computerized tomography scans submitted. The radiographs were evaluated and radiographic features tabulated.

Results. Osteosclerosis limited to the alveolar process, widening of the lamina dura, expansion of the periodontal ligament space, bony sequestra, jaw expansion, radiolucentias, and peri-