

LEARNING OBJECTIVES

To demystify the differential diagnosis of different pathologies involving the posterior mandible using CBCT. In fact, 64,9% of all positif cases only concern 6 easy- to- diagnose pathologies, dentigerous cyst making one third of all pathologies and odontomas every sixth case, and 12 pathologies account for 89,7% of all diagnosis. Adding pseudopathologies, mostly Stafne gap and idiopathic sclerosis, that are of very simple description, makes it up to 94,4% of all positif cases.

BACKGROUND

Posterior mandibular lesions are very frequent and usually of easy diagnosis as the differential is relatively narrow. Before advent of CBCT, these pathologies were frequently incidentally diagnosed by CT and MRI (usually performed for neoplastic work-up or after radiation therapy) or, more rarely, by orthopantomogram. Widespread use of CBCT in dentistry, otorhinolaryngology and maxillofacial surgery, with multiplanar reconstructions, allowed for much more pathologic or pseudopathologic observations at the posterior mandible.

IMAGING FINDINGS

Between 2018 and 2022 we performed 2987 mandibular CBCT. A pathologic observation at the posterior mandible was made in 1067 (36%) of all exams. Dentigerous and Residual cysts, Odontoma, Medication related osteonecrosis of jaws, Osteoradionecrosis, Osteitis, Ameloblastoma, Cemental dysplasia, Keratocystic tumor, Osseous simple cyst, Sarcoma, Multiple myeloma and Pseudopathologies (such as Stafne gap, Idiopathic osteosclerosis or Accessory mandibular canal) represented 94,4% of all diagnosis. Different tumors (Metastasis, Neurofibroma) and pseudotumors (Langerhans histiocytosis, Giant cell central granuloma) represented the rest of the cases. They are frequently suspected but mandatorily require pathologic analysis.

All statistical data are presented in tables 1 (number of cases of all pathologies observed) and 2 (twelve diagnosis accounting for about 90% of all positif cases). The most frequent six easy-to-diagnose pathologies are depicted in image 1. The 4 relatively frequent diagnosis are presented in image 2. Finally, 4 rares posterior mandible pathologies (Ossifying fibroma, Cherubism, Paget and GCCG), more difficult to diagnose and treat, are depicted in image 3.

Table 1

From 2014. to 2020. 2987 mandibular CBCT	1067 positifs (36%)	% of all positifs
Pseudopathologies Stafne gap, Accessory canal, Idiopathic osteosclerosis	62	5,9%
Infectious or inflammatory pathologies MRONJ, ORN, Osteomyelitis	109	10,4%
Odontogenic cysts Dentigerous, residual	417	39,7%
Fibroses lesions FCOD, FCOD, OF, FD, Paget	93	8,9%
Congenital or genetic disorders P Robin, Treacher C, CCD, Cherubism, Gorlin Goltz	8	0,75%
Benign odontogenic neoplasia Odontoma, Ameloblastoma, KCT, Cementoblastoma	296	27,8%
Benign non odontogenic neoplasia Osteoma, Neurofibroma	6	0,56%
Malignant non odontogenic neoplasia Metastasis, Sarcoma, Multiple myeloma	43	4%
Pseudotumors Langerham histiocytosis, GCCG	2	0,19%
Fractures, salivary lithiasis	31	2,9%

Table 2

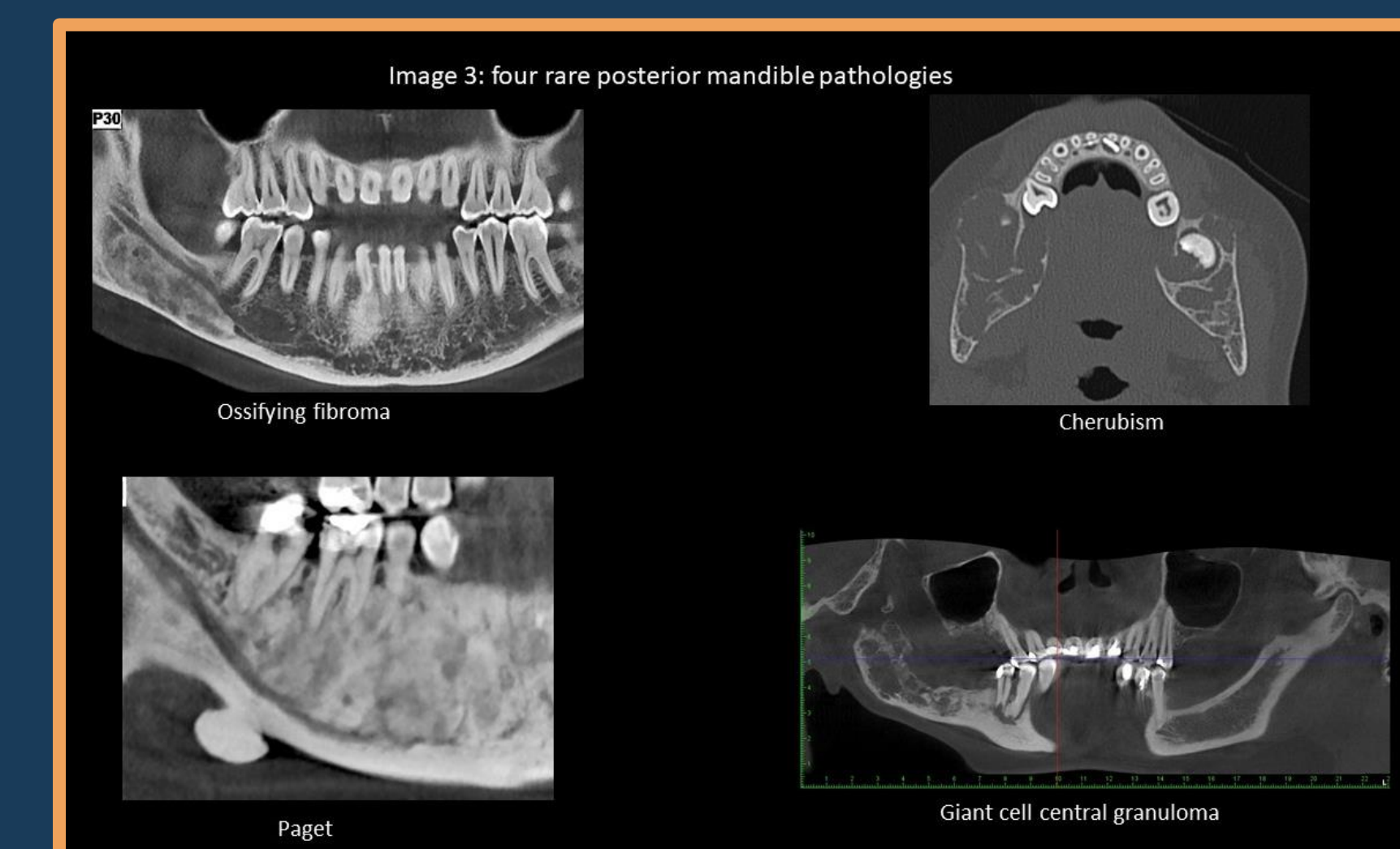
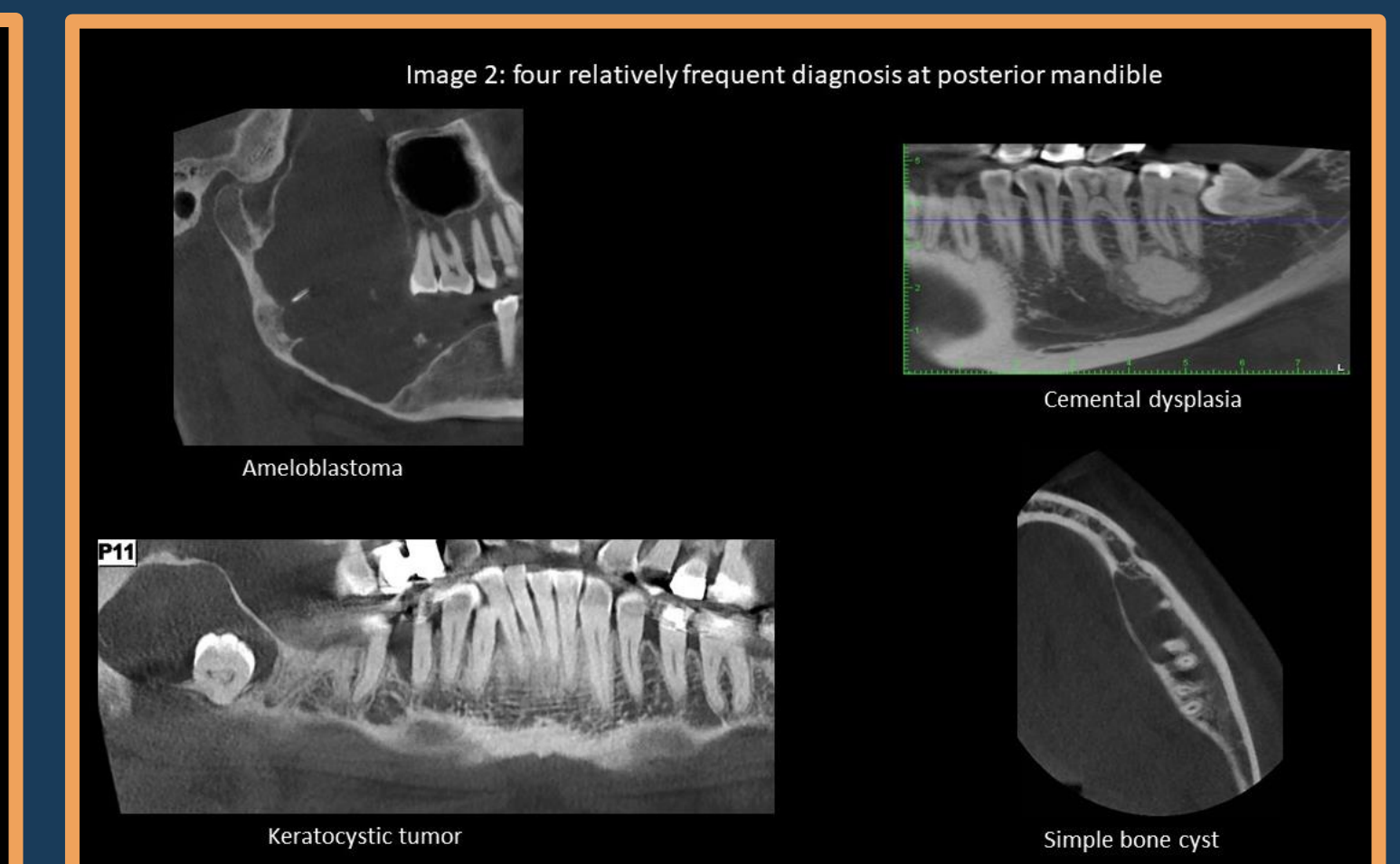
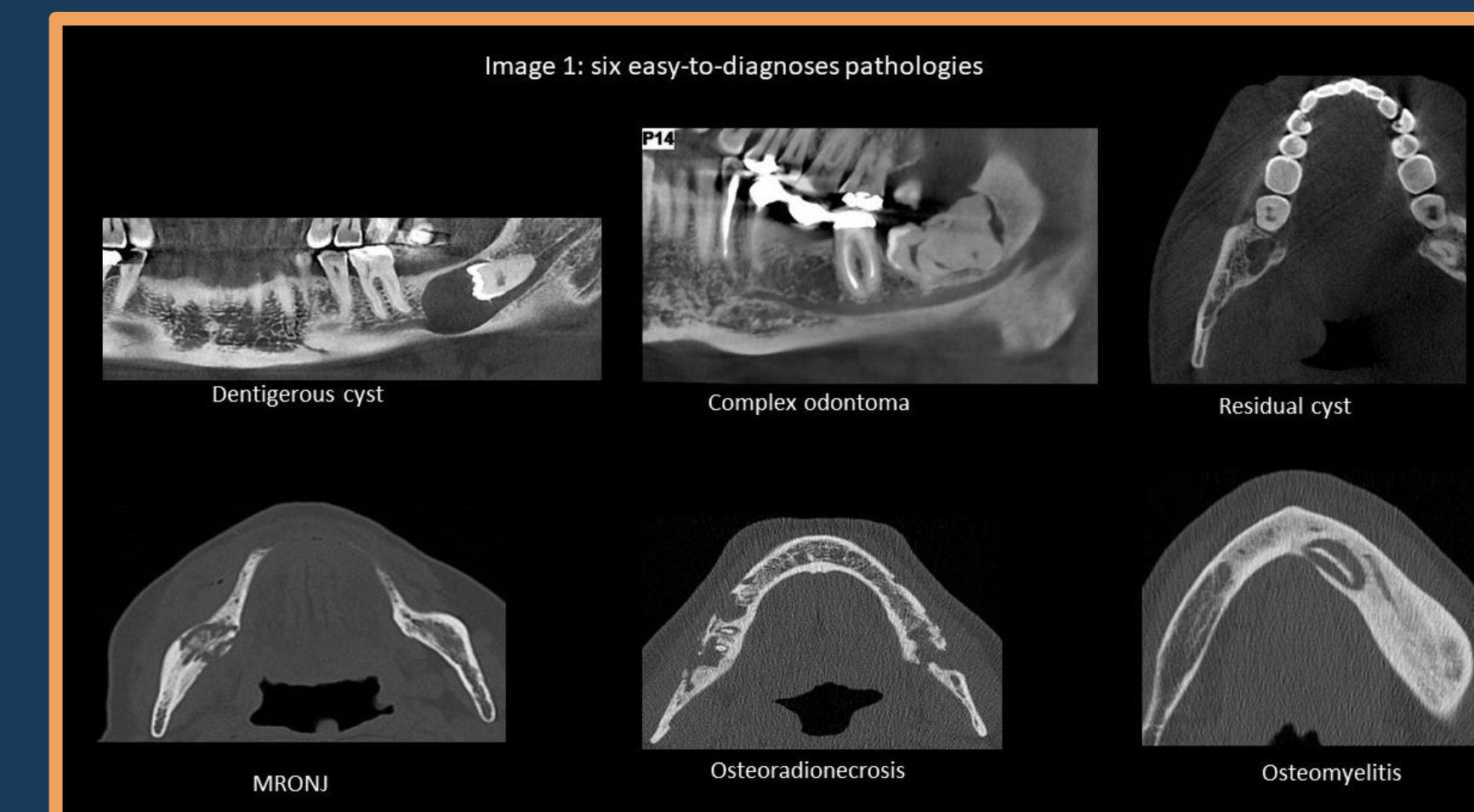
12 diagnosis making 89,7% of all positifs cases (1067)		
Dentigerous cyst	300	28,1%
Odontoma	167	15,6%
Residual cyst	116	10,9%
Osteonecroses: MRONJ, ORN, osteomyelitis	110	10,3%
Ameloblastoma	78	7,3%
Periapical cementosseous dysplasia	74	6,9%
Odontogenic keratocystic tumor	46	4,3%
Osseous simple cyst	24	2,2%
Sarcoma	20	1,9%
Multiple myeloma	11	~1%

CONCLUSION

Posterior mandibular lesions are frequent but the differential is quite narrow. Only 12 pathologies and 3 pseudopathologies represent 94,4% of all positif cases. Non odontogenic neoplasias were rare, only 4,56 % of all positif cases, but several locally destructive lytic lesions represented metastasis of unknown cancer or multiple myeloma.

RÉFÉRENCES

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Abbreviations: MRONJ (medication related osteonecrosis of jaws), ORN (osteoradionecrosis), PCOD (periapical cementosseous dysplasia), FCOD (florid cementosseous dysplasia), OF (ossifying fibroma), FD (fibrous dysplasia), P Robin (Pierre Robin sequence), Treacher C (Treacher Collins syndrome), CCD (cleidocranial dysplasia), Gorlin Goltz (Gorlin Goltz syndrome), KCT (keratocystic tumor), GCCG (giant cell central granuloma)