

Intense accumulation of Tc-99m MDP and Ga-67 in multiple periapical cemental dysplasia

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A case of multiple periapical cemental dysplasia is presented and intensive accumulation of Tc-99m MDP and Ga-67 is described. A 53-year-old woman was admitted with an intermittent pain and swelling of the left buccal region. The radiograph showed multiple sclerotic masses covering entire periapical regions of the teeth, in both the maxilla and mandibula. Biopsy of the maxilla facilitated a definitive diagnosis of multiple periapical cemental dysplasia.

Key words: multiple periapical cemental dysplasia, bone scintigraphy, Ga-67 scintigraphy

INTRODUCTION

PERIAPICAL CEMENTAL DYSPLASIA is considered a non-neoplastic proliferation of fibrous tissues and cementum-like hard tissues usually occurring in the periapical regions of teeth. This lesion is often found in middle-aged women on routine radiographic examination.¹ Periapical cemental dysplasia occurs predominantly in the mandibular incisor regions.² Multiple occurrences in both jaws are rare.³ We encountered a case of multiple periapical cemental dysplasia which showed intense accumulation on both Tc-99m MDP and Ga-67 scintigraphy. To our knowledge, the scintigraphic findings of periapical cemental dysplasia have not yet been reported.

CASE REPORT

A 53-year-old woman was admitted to Kanazawa University Hospital with intermittent pain and swelling of the left buccal region. Physical examination revealed swelling of the bilateral buccal region, hard palate and alveolar regions (Fig. 1). Pus was excreted from the left gingiva to the oral cavity and a fistula from the left gingiva to the infected left maxillary sinus was noted. The radiograph showed sclerotic masses covering the entire periapical

regions of teeth in both the maxilla and mandible. Opacification of the left maxillary sinus caused by sinusitis was also noted (Fig. 2). Tc-99m MDP scintigram revealed marked accumulation in entire areas of the maxilla and periapical region of mandible (Fig. 3). Subsequent Ga-67 scintigram demonstrated high accumulation in the same areas seen on the Tc-99m MDP scintigram (Fig. 4). A biopsy of the maxilla was performed, and histological specimens revealed the proliferation of irregular-shaped cementum-like hard tissues and a small amount of fibroblastic tissues. The histological diagnosis was periapical cemental dysplasia. The patient underwent partial maxillary resection to treat the associated left maxillary sinusitis. Postoperatively, her complaints were improved.

DISCUSSION

The etiology of periapical cemental dysplasia is unknown. It is considered to be a reactive process rather than a neoplastic lesion.⁴ This lesion is commonly found in the periapical regions of vital mandibular incisors of middle aged women. It is usually asymptomatic and is often found accidentally during routine radiographic examination. Multiple occurrence in the maxilla and mandible as in this case is rare. According to WHO's classification, this lesion is classified into 3 stages of development (an osteolytic stage, a cementoblastic stage, and a mature, inactive stage).⁵ Radiographically, the lesions exhibit a radiolucency in the osteolytic stage that resembles

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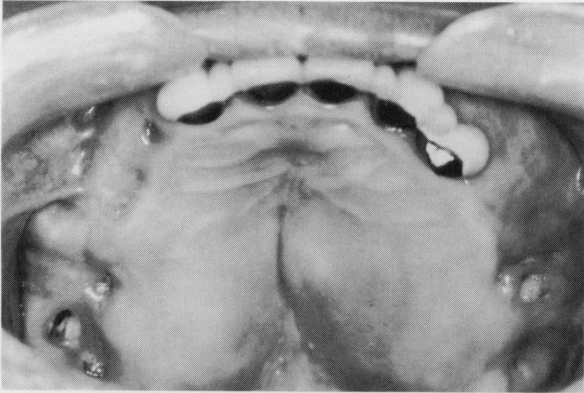


Fig. 1 Appearance of the oral cavity. Marked swelling of the hard palate and alveolar region was noted.

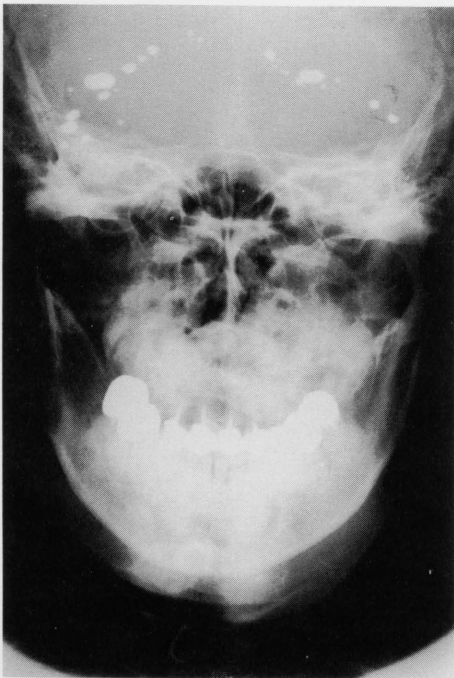


Fig. 2 Radiograph showing multiple radiopaque masses throughout all periapical regions of the teeth in both the maxilla and mandibula. The intracranial remnants of contrast material are noted, which have no relation to this disease.

periapical inflammatory diseases. In the cementoblastic stage, formation of hard tissue usually occurs in the center of radiolucent areas. These lesions then become radiopaque in a mature, inactive stage due to an increase in hard tissue. Histologically, early lesions consist of fibroblastic tissue, and then formation of hard tissue such as cementicles, cementum-like tissue and occasional woven bone occur in the cementoblastic stage, followed by the increase and fusion of hard tissue in the mature, inactive stage.⁶ From the radiographic and histological findings, this case was considered to be in the cementoblastic or mature stage. In this case, a Tc-99m MDP scintigram showed high radio-nuclide accumulation corresponding to the radiopaque

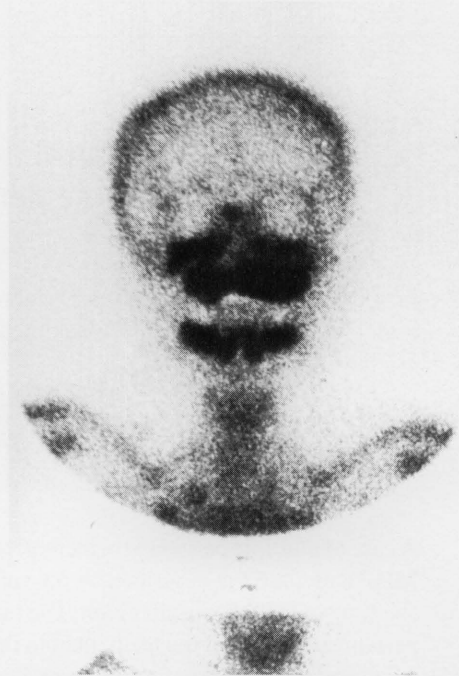


Fig. 3 Tc-99m MDP scintigram demonstrates intense uptake in the maxilla and mandibula, corresponding to radiopaque masses seen on the radiograph and sinusitis.



Fig. 4 Ga-67 scintigram showing high uptake corresponding to radiopaque masses seen on the radiograph and sinusitis.

mass seen on the radiograph. It is assumed that Tc-99m MDP accumulated at the site of cementicles formation, cementum-like tissues and woven bone. This finding suggests that the lesions were still active and progressive. In this case, intense accumulation in parts of the maxillary bone other than the periapical regions may be attributed to

associated sinusitis. A Ga-67 scintigram also demonstrated intense accumulation in the same region as seen on the Tc-99m MDP scintigram. This finding is thought to indicate osteo- or cementoblastic activities of the lesions, as Ga-67 accumulates in fracture sites and sclerotic bone lesions. On diagnostic images, multiple periapical cemental dysplasia must be differentiated from chronic osteosclerotic osteomyelitis, fibrous dysplasia and other odontogenic lesions. From its characteristic location and radiographic findings, it may not be very difficult to differentiate this case from other lesions, but for definitive diagnosis, biopsy is still recommended. Tc-99m MDP scintigram was useful for estimating the activity and extension of the lesion in this case. Ga-67 was also useful, but it could not offer any information additional to the Tc-99m MDP scintigram.

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