

## Orthopantomography and computed tomography with conical beam as auxiliary tools in the diagnosis of osteoporosis in women

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### Introduction

Osteoporosis is a systemic disease of the skeleton, characterized by a decrease in bone density, impaired bone tissue microarchitecture, which leads to increased bone fragility and consequently increases the risk of fractures (WHO) [1]. Currently, with the increase in the number of elderly people globally, the incidence of osteopenia/osteoporosis also increases. This condition is prevalent in older people and sometimes may be detected only if fractures occur. However, it is known that this condition can be prevented when detected early, using various diagnostic techniques and methods. The assessment of bone mineral density (BMD) by DXA is considered the gold standard for the identification of osteoporosis, as it is an easy method to perform and provides high accuracy in detecting BMD. But there are other radiological methods (OPG,CBCT), which allow the detection of BMD disorders. The obtained results provide us with data that can be used for a treatment course in the implant-prosthetic rehabilitation of patients with presumed osteopenia/osteoporosis [2].

### Keywords

osteoporosis, orthopantomography, CBCT, osteodensitometry, edentation

### Purpose

Assessment of radiological methods used in the dentist's activity for early detection of osteopenia/osteoporosis.

### Material and methods

The study included 49 patients (50-84 years, mean = 60.38) with edentulousness, who addressed for prosthetic implant rehabilitation in dental clinic “Omni Dent”. Radiological examination (OPG, CBCT) was performed in all patients (figure 1 and figure 2). The diagnosis of osteopenia / osteoporosis was made according to Klemetti classification (figure 1). The results were correlated with those obtained from the osteodensitometric radiological examination.

### Results

Osteodensitometry result: 11 patients with normal BMD, 20 with low bone density corresponding to osteopenia and 18 patients with osteoporosis (figure 3). OPG and CBCT radiological examination results: C1-13 patients; C2-19 patient; C3- 17 patient. Correlating the OPG, CBCT data with the osteodensitometric, we established that the method according to Klemetti has a statistical truthfulness rate of 85.3%. Of the group of patients over 60 years of age, 12 (48%) were diagnosed with osteoporosis, 9 (36%) with osteopenia and 4 (16%) with normal BMD. In the group of patients up to 60, 6 (25%) patients with osteoporosis, 11 (45.83%) with osteopenia and 7 (29.16%) with normal BMD were detected.

### Conclusions

The obtained result allows us to state that OPG and CBCT can be considered auxiliary methods for the early diagnosis of osteopenia / osteoporosis. In case of advanced forms detection, the patient needs to be directed to specialized physicians for further examination.

### Bibliography

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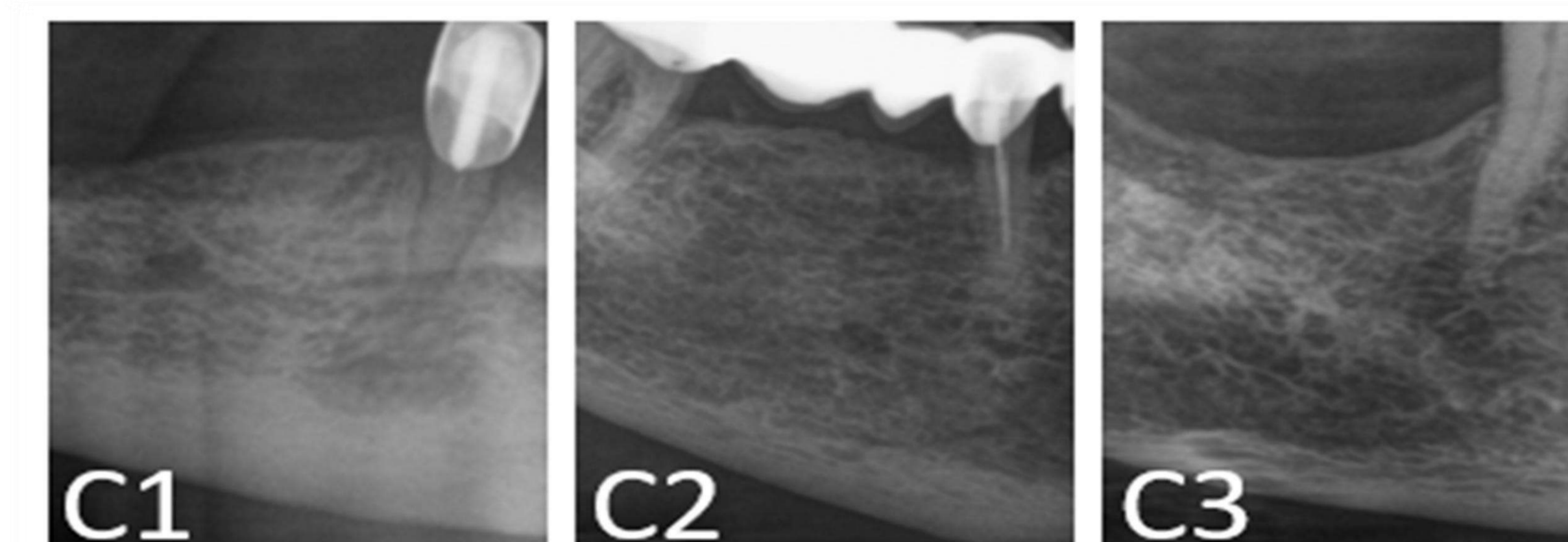


Fig. 1. Scheme of radiographic classification of osteoporosis on OPG according to Klemetti: C1 (patient O. E., 59 y.o.); C2 (Patient N.L., 57 y.o.); 3 (patient M.N., 70 y.o.).

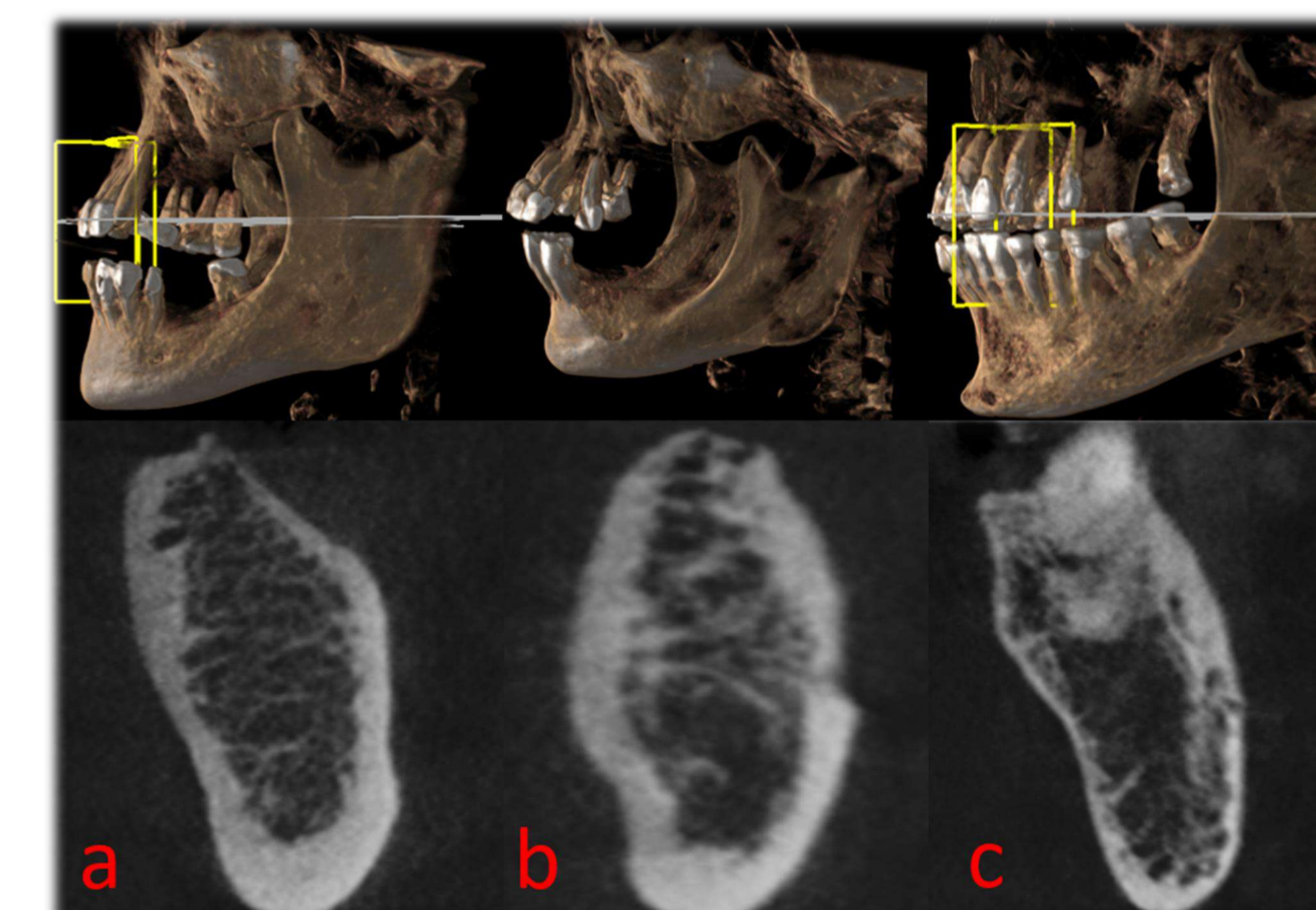


Fig. 2. Radiographic classification of bone density on CBCT in correlation with DXA: a- normal bone density; b- osteopenia; c- osteoporosis.

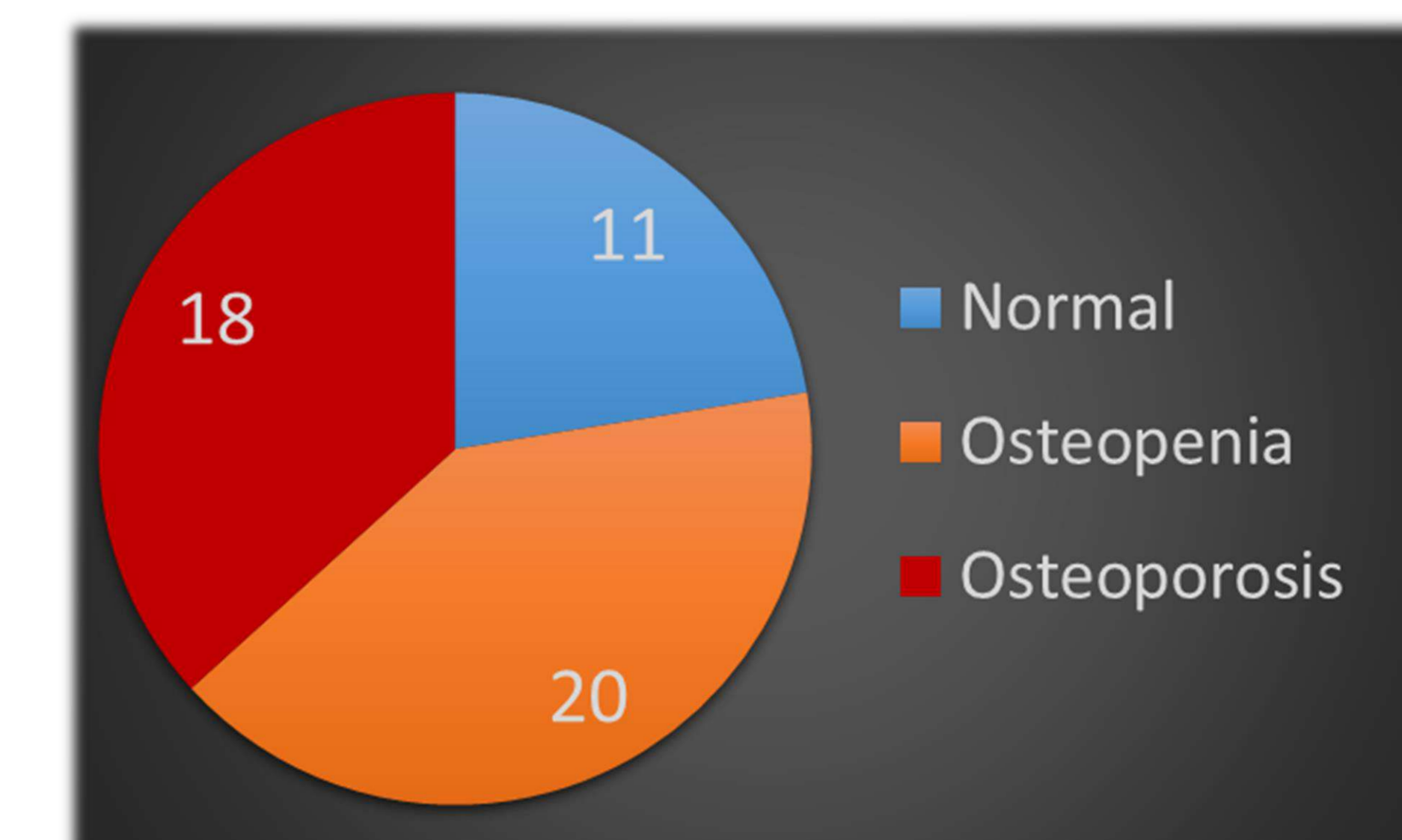


Fig. 3. DXA results