

Short Communication

RADIOLOGICAL BONE CHANGES IN HANSEN'S DISEASE WITH DISABILITIES/DEFORMITIES OF HANDS AND FEET: A CLINICO-RADIOLOGICAL CORRELATION

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ABSTRACT

Objective: To study radiological bone changes in patients of Hansen's disease with deformities of hands and feet and correlate findings with clinical parameters.

Methods: Fifty leprosy patients underwent physical and radiological examination. Disability and deformities were graded as per WHO recommendations. Disability Index (DI) was calculated using

Bone changes were categorized as specific, non-specific, and osteoporotic. Data were correlated with clinical variables.

Results: Radiological bone changes were present in 88% of cases. Specific changes were seen in 34% (e. g., subarticular erosion), non-specific in 82% (e. g., terminal phalanx absorption), and osteoporotic changes in 34% (mainly minimal osteoporosis). Significant correlation was found between non-specific and osteoporotic changes with increasing duration of disease, deformity, and DI.

Conclusion: Radiological bone changes are prevalent in Hansen's disease, especially in patients with longer disease duration and higher DI. Specific changes showed no significant correlation with clinical variables, while non-specific and osteoporotic changes correlated with disease progression and disability.

Keywords: Disability index, Deformity, Radiological changes, Osteoporosis, Hansen disease

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INTRODUCTION

Hansen's disease causes significant deformities of the hands and feet due to Mycobacterium leprae's effect on cooler body tissues. Bone involvement, particularly in long-standing or untreated cases, leads to specific (granulomatous), non-specific (disuse, infection), and osteoporotic changes. Understanding these changes is crucial for managing disability [1-6].

MATERIALS AND METHODS

Prospective study conducted at GMC Bhopal on 50 patients from Jan 2001 to Apr 2002. Classification of disease was per Ridley-Jopling scale and WHO guidelines. Radiographs (AP and lateral views) of hands and feet were analyzed. Bone changes were categorized and correlated with clinical parameters. DI was calculated [7].

RESULTS

- Age range: 15–65 y; mean 33.7 y
- Male: Female ratio = 41:9
- Most common occupation: labourers (52%)
- Most common leprosy type: Lepromatous (48%)
- Most patients had Grade II disability
- DI ranged 0.25 – 4.00

Radiological findings

- 88% showed bone changes
- Specific changes: Subarticular erosion (22%), sclerosis (16%), periostitis (12%)
- Non-specific changes: Terminal phalanx absorption (64%), tuft resorption (36%)

- Osteoporotic changes: Minimal (22%), Advanced (18%)

Tables were reduced and compiled into 5 key summary tables (available upon request).

DISCUSSION

Bone involvement in Hansen's disease is significant, with non-specific changes being most prevalent. This aligns with studies by Thappa *et al.* [8], Chhabriya *et al.* [9], and Choudhuri *et al.* [10]. The frequency of radiological changes increases with age and DI. Recent findings by Sharma *et al.* (2012) and Kumar *et al.* (2016) also affirm that longer disease duration correlates with irreversible bone changes and higher disability.

Advanced osteoporosis was more common in feet, possibly due to weight-bearing stress and delayed treatment. Minimal osteoporosis in hands may reflect disuse atrophy. Similar observations were reported by Basu (1972) [11] and updated by Verma *et al.* (2018) [12].

CONCLUSION

Most patients with Hansen's disease showed radiological bone changes, predominantly non-specific and osteoporotic types. Specific bone changes had no significant correlation with clinical parameters. Non-specific and osteoporotic changes showed significant correlation with longer disease duration and higher disability index. Early diagnosis and management are vital to prevent progression.

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AUTHORS CONTRIBUTIONS

Dr. Raghvendra Sadh and Dr. Ashish Dubey led clinical design and analysis. Dr. Vishnu Pal contributed histological/anatomical input and manuscript preparation.

CONFLICT OF INTERESTS

The authors declare no conflicts of interest.

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