

# Analysis and comparison of human DNA in dental calculus with Barr bodies for gender determination: a comparative blind study

Udita, Singh <sup>1</sup>

<sup>1</sup> PhD scholar at Pacific Dental College and Hospital

**Corresponding author:**  
[udita73singh@gmail.com](mailto:udita73singh@gmail.com)

ORAL PRESENTATION

J Forensic Odontostomatol  
2017 Nov 1; Supp1(35): 23  
ISSN :2219-6749

## ABSTRACT

**Title:** Analysis and comparison of human DNA in dental calculus with Barr bodies for gender determination: a comparative blind study.

**Context of the problem:** In majority of identification cases, investigators rely on either bone or teeth as the source of DNA. But there are instances in which the remains are either not well preserved or not permitted by the law or family members to be disintegrated for the sole purpose of identifying the dead. Due to environmental insult of the post-mortem data, the samples may not yield DNA sufficient enough for analysis. Thus the scope of the present study lies in identifying the unknown without scarifying the structural integrity of the dead remains.

**Aim:** To analyze and compare human DNA in dental calculus with Barr bodies for gender determination.

**Materials and methods:** In this study fifty subjects who fulfilled the inclusion criteria were selected from the dental outpatient department. Patient's demographic data was recorded and the most pronounced portion of dental calculus was collected. These samples were subjected to gel electrophoresis for DNA estimation and quantification. For gender determination DNA samples were subjected to Short Tandem Repeat (STR) profiling for identification of sex specific chromosomes/genes. For Barr body analysis, buccal smear was made by gently scrapping the buccal mucosa unidirectionally and analyzed histologically for the presence/absence of Barr bodies. Finally the results of both the procedures were tabulated and subjected to descriptive statistical analysis.

**Results:** Human DNA (genomic) was found in 80% cases ranging from 21.5µg/ml to 34µg/ml. The average amount of DNA was 18.8µg/ml ± 13.06 µg/ml. Accurate gender determination from DNA samples was possible in all the cases.

**Conclusion:** Dental calculus is an excellent reservoir of human DNA and can serve as a tool for personal identification and gender determination.