

Human ethical clearance. Tissue slides were collected with the approval of an ethical committee from the participating hospitals and research institutions, (1) Jamia Millia Islamia, New Delhi(Proposal No.: 6(25/7/241/JMI/IEC/2021), (2) Maulana Azad Institute of Dental Sciences, New Delhi(Proposal No.: F./18/81/MAIDS/Ethical Committee/2016/8099); (3) Rajendra Institute of Medical Sciences, Jharkhand(Proposal No.: ECR/769/INST/JH/2015/RR-18/236), (4) Banaras Hindu University, Banaras(Proposal No.: Dean/2021/EC/2662), and (5) All India Institute of Medical Sciences, New Delhi(Proposal No.: IEC-828/03.12.2021, RP-33/2022), India. The buccal mucosa tissue samples were collected for three classes, normal, OSMF, and OSCC, with grade-wise annotation from the pathologists at each hospital. Data collection for the study was conducted with the explicit consent of the patients involved, following a rigorous ethical review and approval process carried out by relevant committees. Informed consent was obtained from all participants, ensuring they were fully aware of the study's purpose, procedures, potential risks, and benefits. They were given the opportunity to ask questions and seek clarification before providing their consent to participate. Participants willingly agreed to the open publication of their data, understanding that their identities would be protected and their information anonymized. The manuscript includes specific references to ethical approval granted by different institutions, indicating their compliance with ethical guidelines and regulations. These references serve as a means of tracking and verifying the study's adherence to ethical standards.