



0073

**Annotated Clinical Image Database Supporting AI Algorithms for OSCC Diagnosis**

G. La Mantia<sup>1,2</sup>, G. Cimino<sup>3</sup>, M. Parola<sup>3</sup>, G. Pizzo<sup>1,2</sup>, O. Di Fedè<sup>1</sup>

<sup>1</sup>University of Palermo, Palermo, Italy, <sup>2</sup>University Hospital Palermo, Unit of Oral Medicine and Dentistry for fragile patients, Palermo, Italy, <sup>3</sup>University of Pisa, Pisa, Italy

**Objectives** Up to 86% of patients with oral squamous cell carcinoma (OSCC) receive diagnosis at an advanced stage, resulting in poor survival rates. Introducing artificial intelligence and deep learning systems in the diagnosis of OSCC is the evolution of recent research. However, to date, databases of oral cavity lesion images are limited and not well-defined or secure due to the lack of histological confirmations. One of the most frequent clinical forms of OSCC is ulcer. This study aims to illustrate the development of a platform for the collection, annotation, and labelling of clinical images, leading to the creation of the first dataset on oral ulcerative lesions.

**Methods** We designed a protocol for collection and standardization of clinical images of ulcerative oral lesions collected at the Oral Medicine Unit at University Policlinico "Paolo Giaccone" of Palermo after informed consent of patients. This endeavor was supported by a web-based platform hosted on a dedicated server, designed in partnership with the Department of Computer Engineering of the University of Pisa. To maintain the fidelity of the clinical features in the images, we applied following inclusion criteria for image collection: high image resolution and histological confirmation of lesions with uncertain diagnoses prior to annotation.

**Results** To date, a database has been created and it is composed of 600 images (184 neoplastic, 214 aphthous, and 199 traumatic ulcers). These have been annotated and labeled by three oral medicine and include high-quality images of ulcerative oral lesions, classified in aphthous, traumatic, and malignant neoplastic ones. Other 200 images will be annotated and labeled in the next two months.

**Conclusions** We present a novel, annotated database of clinical images of ulcerative oral lesions. The release of this dataset with 1000 images will be planned on public servers. This could be certainly a powerful resource to significantly boost the development of AI algorithms for the early detection of OSCC, improving patient outcomes through early intervention.