Background: The etiology of an orbital mass, in some cases, cannot be confidently determined on the ground of clinical and radiological findings. In these cases, an orbital biopsy is required to help achieve the definitive diagnosis before an appropriate management plan is formulated.

Purpose: To evaluate the contribution of orbital biopsy for the management of patients with an orbital mass of unknown etiology, using the Greenwich Grading System (GGS).

Methods: Retrospective case series at a tertiary hospital over a period of 10 years (2008-2017). Case records of all patients with an orbital mass were reviewed and only the cases of patients that underwent orbital biopsy were selected. All relevant data collected from the local electronic database and medical records were analyzed. The GGS was used to quantify the contribution of orbital biopsy for the diagnosis, overall investigation and treatment of each patient.

Results: A total of 92 medical records were reviewed, and 34 had an orbital biopsy, so 58 were excluded from analysis. The mean age of the patients was 54.7±22.8 years-old, and 50% were female. The mean time from the first symptoms to orbital biopsy was 2.1±3.6 years.

The most common histopathological diagnoses were: malignant lymphoma (44.1%); nonspecific orbital inflammation (NSOI) (14.7%); squamous cell carcinoma (8.8%) and orbital metastasis (5.9%). Incisional biopsy was performed in 67.6% of the patients, excisional biopsy in 29.4% and one patient had fine needle aspiration biopsy. The anterior orbital biopsy was more frequent (82.4%) and the remaining patients had mid/posterior orbital biopsies. In 4 patients (11.8%), the biopsy was repeated due to inconclusive histopathologic result. There were 2 (5.9%) postoperative complications noted: 1 orbital hemorrhage and 1 with diplopia.

As the histopathology result is the only test available to have a confirmed diagnosis of the etiology of an orbital mass, the biopsy was considered to be of value in all patients for their overall management. After the histopathological result, a new diagnosis was obtained in 41.2% of the patients, although in most patients (58.8%) the biopsy confirmed the suspected diagnosis. Regarding therapeutic management, after the orbital biopsy result, a new treatment was started in 38.2% of the patients, 32.4% did not change their treatment and 23.5% altered/stopped their treatment.

Conclusions: Orbital biopsy is a valuable investigation for the management of patients with an orbital mass of unknown etiology. In most cases, the result of the biopsy confirms the suspected diagnosis and around 41% of the patients have a new diagnosis. The majority of the patients change their treatment or start a new one based on the histopathological result.