The incidence of primary orbital tumors is rated between 7% and 10%. Primary adenocarcinoma represents about 3% of epithelial tumors of the lacrimal gland and its surrounding structures, in which up to 10% of cases are malignant, with 5-year overall survival is about 50% (5). Considering the rarity and delicate aggressiveness of this malignant tumor and the aesthetic and functional problems related to its treatment, a wide range of treatment protocols is available. The choice of adjuvant radiation therapy with/or without chemicals. The purpose of this presentation is to describe and elucidate the various challenges of the diagnostic and therapeutic path of one of primary adenocarcinoma of the lacrimal gland

**Case report**
A 54-year-old woman was admitted for left increasing exophthalmia and orbital pain, following two previous surgical treatments for adenocarcinoma of the lacrimal gland G2: two consecutive endobuccal excisions of 2.1 cm mass (T2) and total conservative parietotomy and modified radical neck dissection of Level 1 & 2 parotid space extra vertical single model metastasis (EVL-1&2). An admission MRI was achieved through MRI and 18F-FDG PET/CT. The former evidenced recurrent 1.6 cm extraosseous nodular mass of the left lacrimal gland, infiltrating the lateral rectus muscle and displaying the eye without displacement. As highly suspect for recurrent adenocarcinoma at morphological evaluation, gadolinium enhanced dynamic studies and diffusion-weighted imaging (DWI). The latter confirmed the high metabolic activity at the primary site [Standard Uptake Value SUV: 6] and did not evidence regional and distant metastases. The tumor was staged as cT3, cN0 (previous pT1cN0, cM0 – 344). Surgery: salvage surgery of the primary and recurrent tumor and post-operative radiation therapy of T4N were planned. The aid of harmonic scalpel, in order to reduce bleeding. "Type 1" orbital resection was performed, according to Meyer and modified radical neck dissection of Level 1 and 2 parotid space and lateral neck, at the global dose of 59.6 Gy.

**Imaging**
MRI: enhanced 1.0-cm intranodular nodular mass at the left lacrimal gland, infiltrating the lateral rectus muscle and thickening, without bone involvement. Gadolinium enhanced dynamic studies and diffusion-weighted imaging (DWI). The former evidenced recurrent adenocarcinoma. DWI was highly suspected for recurrent adenocarcinoma of the lacrimal gland. 18F-FDG PET/CT scanning confirmed the high metabolic activity at the primary site [Standard Uptake Value SUV: 6] and did not evidence regional and distant metastases. Imaging features: a high metabolic activity at the orbital apex showing the zygomatic bone ostectomy and orbital frame preservation.

**Pathology**
5.5. Infiltrating epithelial neoplasm composed of solid sheets of large cells with marked nucleolar atypia and scattered mitotic figures. Limited areas of ductule and focal ductular formation were identified. Presence of a pre-existing pleomorphic adenoma was demonstrated.

**Post-op**
Total oral radiation therapy consisted in intensity modulated radiation therapy to the primary site, ipsilateral parotid space and lateral neck, at the global dose of 59.6 Gy at the primary site and parotid space and to the ipsilateral neck lymph nodes (levels 1 to 3).

**Discussion**

**Diagnosis and staging**
Diagnosis of orbital mass is a case of "hidden" primary orbital lesion by the lacrimal gland and when there is no hilar mobility impairment, orbital pain or reduced visual acuity, except in surgical thickened epibulbar skin, preserving the parotid and the orbital bone. The reason, for this standard procedure was avoided in the present case, is due to the fact that biology of the primary mass was known and that previous resections had likely left residual disease, so the suspect of recurrence was significant. MRI, gadolinium enhanced dynamic study and diffusion-weighted imaging (DWI). Benign lacrimal gland tumors usually are in homogenously hypointense on T2WI. Signs of cortical orbital bone compression are often evidenced in these tumors. Malignant tumors often show nodularity and infiltrative patterns on MRI. They frequently distort the globe and surround the tumor with a capsule. MRI and FDG PET/CT evidenced hypermetabolic activity in the orbit with a SUV between 7.3 and 1.4, suggestive for adenocarcinoma.

**Orbit reconstruction**
Reconstruction after orbital resection ranges from no-reconstruction to microvascular free-flap transfer. The aim of one-time, concomitant reconstruction are aesthetic, anatomical (to divide orbital space from anterior skull base and paranasal sinuses), and to give adequate cover and fast healing to expose orbital bony structures, which will be eradicated. Theoretically there are some definite cases of resection type 4 require reconstruction. All other cases may achieve sequential, spontaneous healing. The fact is that some form of reconstruction is necessary in most cases, considering the high risk of postoperative irradiation following resection, which must be started in a 45-60 day, post-operative period. Complete second healing may be longer and the late adequate to protect bone from radiation side effects. Moreover aesthetic rehabilitation through eye or orbital prosthetic will be evaluated. In the present case type 1 resection was performed considering the recurrent disease, the infiltration of orbital soft tissue and the close contact to orbital bone.

**Conclusion**
The surgical treatment of orbital tumors is a challenging field of head and neck oncology, for the value of the host organ and structures, the wide range and number of tumors, which may arise in this complex space, and its localization within skull base and sinusal complex. No evidence-based guidelines are available, so the treatment recommendations come from single institution reports. At the state of the art, the radical, free margin resection and postoperative irradiation are the most common choice in case-regional control. The present planning requires the importance to perform definite time postoperative irradiation and future prosthetic rehabilitation. This means that reconstruction is generally required and has to be considered for the patient, in order to reduce the risks of sequelae and complications, which could delay post-operative irradiation.

**References**