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RESEARCH ARTICLE

MUCOEPIDERMOID CARCINOMAOF THE EXTERNAL AUDITORY CANAL (EAC)

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Abstract

Strategies used for treatment of mucoepidermoid carcinoma remain controversial due to its rarity . We present a case of a patient with a mucoepidermoid carcinoma of the left external auditory canal (EAC) treated with concurrent chemoradiotherapy given the inoperability of the patient . Radiotherapy was performed with the intensity-modulated radiation therapy technique in order to the overcome anatomical complexity of the region, cover the tumor bed, and preserve the organs at risk.Chemotherapy (cisplatin) was used as a radiosensitizer witch providedreasonable locoregional control with tolerable toxicity.

Introduction:-

Primary malignancies of the external auditory canal (EAC) are extremely rare with more than 80% being squamous cell carcinomas . Mucoepidermoid carcinoma accounting for approximately less than 1 %.

Mucoepidermoid carcinoma is a malignant tumor that frequently originates in the major and minor salivary glands and also occurs in other glandular structures in both normal anatomic and ectopic sites. Thus, the ceruminous gland of the deep dermis in the EAC is a possible site of growth. However, the actual pathogenesis is not known[1]. We report the case of mucoepidermoid carcinoma of the external auditory canal, and highlight the impact of concurrent chemoradiotherapy on the outcomes of this disease. This report is of particular importance because this cancer has yet to be fully characterized in the clinical literature .

Case Report :

A 74-year-old patient treated twelve years ago with chemoradiotherapy for a nasopharyngeal carcinoma . The symptoms began one year beforehis consultation in our department with a process in the left external auditory canal associated with deafness which motivated the patient to consult at the ENTdepartment (ear–nose–throat)where he benefited from a biopsy and an extension assessment that revealed a locally advanced mucoepidermoid carcinoma . The patient was discussed in the multidisciplinary tumor board (MDT) with the decision of an exclusive radio-chemotherapy since he was unfit for surgery .
A whole -body CT was performed , showing a locally advanced process of the leftexternal auditory canal with extension to the middle ear associated with an ipsilateral intraparotid lymphadenopathy with no evidence of metastases elsewhere .

An MRI was also performed that showed a tissue process occupying the left external auditory canalextending to the tragus and the pinna cartilage, locally advanced, withextension to the middle ear, the petrous pyramid, the gulf of

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the jugular and the para-pharyngeal regionipsilateral, associated with ipsilateral intra-parotid lymphadenopathy (Figure 1)

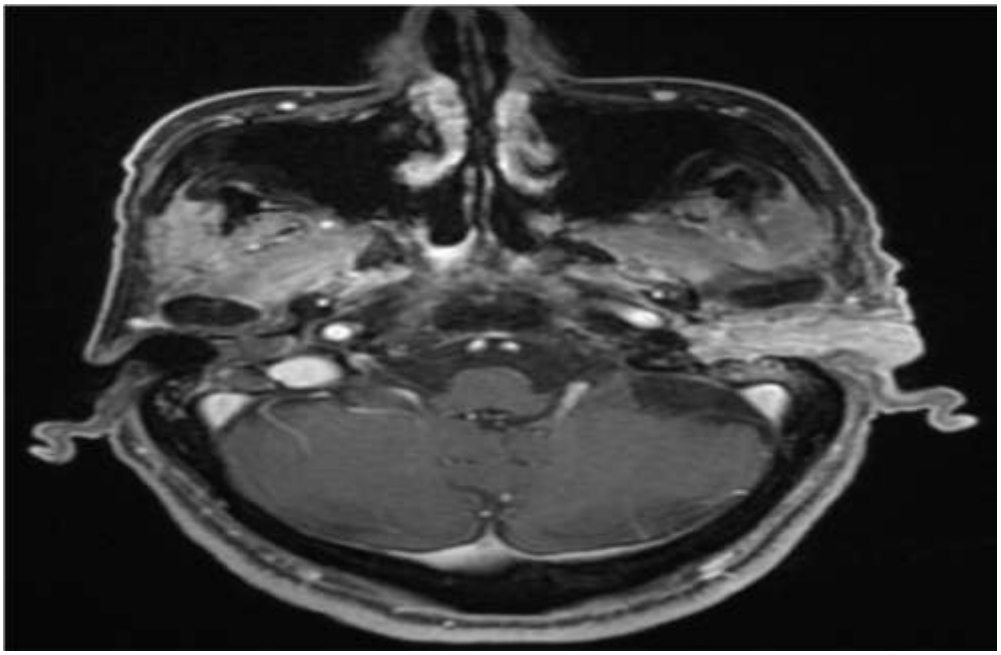

Figure 1:- MRI sagittal image showing the mucoepidermoid carcinoma of the left external auditory canal.

The physical examination presents a patient withPS 2 , left peripheric facial paralysis (Grade 3) and left deafness . The otoscopy of the left ear shows a tissue process covering all the EAC.

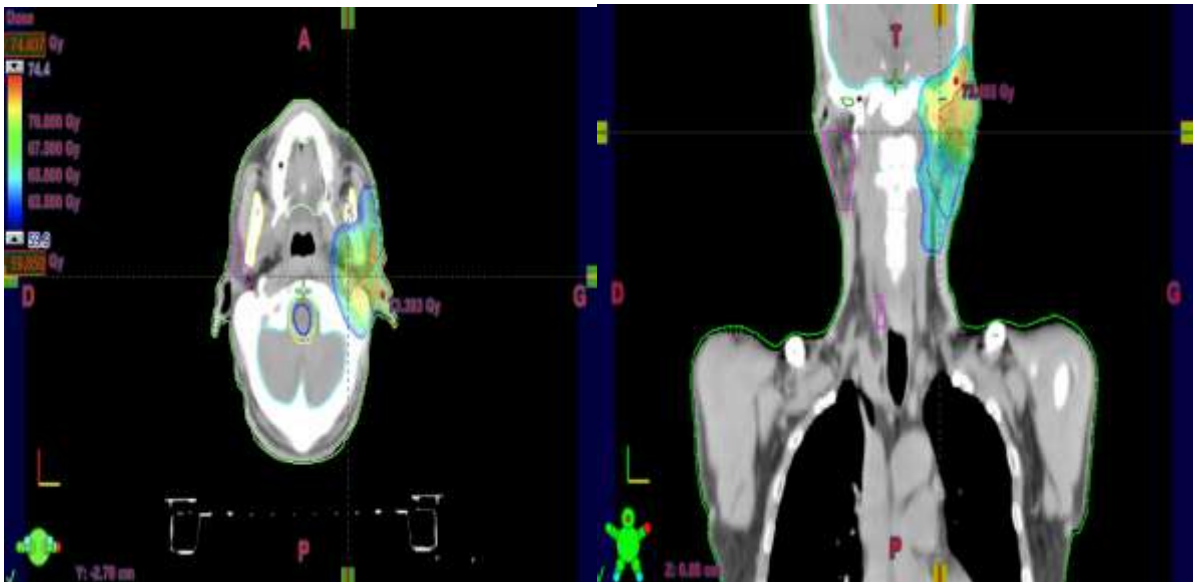

Figure 2:- Axial and frontal computed tomography images of the head and neck showing the radiation doses delivered to each target volume. A = anterior; D = right; P = posterior G= Left

Our patient underwent chemoradiotherapy and he was scheduled for a total dose of 70 Gray of radiotherapy in 35 fractions , at a daily dose fraction of 2 Gy with IMRT technique.

(Figures 2).We were able to keep the tolerance doses of the organs at risk within normal limits considering the past radiation of the nasopharynx and at the same time deliver the intended dose of radiation to the target volume ;as for concomitant chemotherapy ;cisplatin was administered weekly (6 cures) .

The patient was able to tolerate the treatment without breaks, although he did experience xerostomiaand conjunctivitis during the treatment . He was seen weekly during chemoradiotherapy with a good tolerance . There was no evidence of disease at 24 months of follow up.

Discussion:-

Primary mucoepidermoid carcinoma is an extremely rare entitie that is usually misdiagnosed since it does not differ from other types of malignancy on otoscopy; histologic confirmation that shows scattered, solid and cystic mucinous areas is essential to diagnosis.

Due to the mixed components, classification is based on the proportion of the solid part that is present.In low-grade tumors, there is a high percentage of mucinous cells and cystic or microcystic structures. High-grade tumors consist of solid nests or cords of mostly squamous cells. Therefore, with regard to its epithelial components, high-grade mucoepidermoid carcinoma is very similar to poorly differentiated squamous cell carcinoma.[2]

There are no large-scale studies on the treatment outcomes for EAC cancer. Several previous studies concluded that surgery alone or radiotherapy alone is recommended for early stage EAC cancer, whereas a combinatorial treatment with surgery and chemoradiotherapy is recommended for advanced EAC cancer[3], [4].However, subtotal or total temporal bone resection is highly invasive. In recent years, radical radiotherapy has often been performed as the initial treatment for advanced EAC cancer, from the viewpoint of organ preservation.

Most of the data on radiotherapy outcomes for EAC cancer are based on conventional two-dimensional conformal radiation therapy, and there is a dearth of data on computed tomography (CT)-based threedimensional conformal radiotherapy (3D-CRT) or intensity-modulated radiotherapy (IMRT) [5]–[7]. Some studies also mention the importance of evaluating tumor progression .There is therefore a strong need to review the efficacy of CT-based radiotherapy.

Because the symptoms of early tumors are nonspecific, diagnosis is usually delayed. It has been reported that 65% of patients are at T3 or T4 at the first visit, and the average time from initial symptom to diagnosis is 12.4 months to 3.9 years[4], [8].Radiological imaging assessment of head and neck is essential for accurate tumor diagnosis and staging [9].CT and MRI are complementary imaging examinations for EAC malignancies[10]. Nevertheless, the extent of tumor may be either overestimated or underestimated despite scanning using both CT and MRI [11], [12] .

There is no consensus currently on TNM staging of these tumors by the American Joint Committee on Cancer (AJCC) or the Union for International Cancer Control (UICC). The most widely accepted system is the Pittsburgh staging system[9] . Nevertheless, the Pittsburgh staging system is proposed for SCC in the EAC. Though a few authors extrapolated the Pittsburgh classification to other histological types [13], [14][15], its role in evaluating tumors of other histological types in the EAC or tumors of other subsites of the temporal bone needs to be studied further. The presentation, extension, and treatment of these tumors may be of great difference from those of the SCC in the EAC.

Although the true incidence of ceruminous gland tumors is difficult to determine, the incidence of malignant external auditory canal tumors has been reported as follows: 86 per cent squamous, 6 per cent basal, 6 per cent adenoid cystic carcinoma, 2 per cent adenocarcinoma, 1 per cent melanoma, and less than 1 per cent mucoepidermoid, acinic cell and Merkel cell carcinomas.[16]

Malignancies of the EAC have a poor prognosis and a high rate of recurrence; therefore, most authors advocate aggressive treatment at the time of diagnosis. On the other hand, an aggressive approach to treatment is associated with higher risk of postoperative morbidity, including hearing loss and facial nerve dysfunction. In treatment of mucoepidermoid carcinoma of the EAC, both oncologic outcome and surgical morbidity must be considered.[2]

Conclusion:-

Concurrent chemoradiotherapy, provides reasonable locoregional control with tolerable toxicity. Further detailed case reports are warranted to optimize the management of this rare malignancy.

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