Ethmoidal adenocarcinoma with lung metastases: diagnosis and multimodal treatment

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SUMMARY: Ethmoidal adenocarcinoma with lung metastases: diagnosis and multimodal treatment.

We report a case of a 68-year-old patient underwent a magnetic resonance imaging (MRI) of the skull and a computed tomography (CT) of the thorax for rhinorrhea and dyspnea. The MRI showed an irregular ethmoidal lesion and the CT of the thorax underlined a solid nodular neoformation in the upper right pulmonary lobe. The patient underwent rhinoscopy with biopsies that showed an ethmoidal adenocarcinoma; excision of the tumour was carried out via trans-sphenoid. After one month the patient underwent wedge-resections in video-thoracoscopy (VATS). Perioperative histologic examination revealed a lung metastases due to an adenocarcinoma of the ethmoid.

The patient was treated with chemotherapy and did not show relapses after 12 months from VATS.

KEY WORDS: Ethmoidal cancer - Lung metastasis - Surgery - Radiotherapy - Chemotherapy.

Cancro dell’etmoide - Metastasi polmonare - Chirurgia - Radioterapia - Chemioterapia.
carcinoma not well specified. The patient underwent rigid rhinoscopy with biopsies that showed an ethmoidal adenocarcinoma; trans-sphenoidal excision of tumour was carried out.

One month later the patient was submitted to a video-assisted thoracoscopy (VATS) of the right lung. The upper pulmonary lobe appeared partially adherent to the thoracic wall. After dissection of the parenchyma, we noticed an oval white neoformation in the central segment of the upper lobe, with a soft-elastic consistency. In the lower lobe we also found two neoformations with a hard-elastic consistency and a diameter of 0.8 cm. The frozen section examination revealed tumour with some pattern of the adenocarcinoma that could be assimilated to the previous neoaplasm of the ethmoid. We performed wedge-resections of the masses with Endo-GIA 30 Blue (Ethicon Endosurgery) with support in Gore-Tex (Seamguard, W.L. Gore & Associates, USA); the mediastinal lymph node was removed.

The patient was discharged on the third day. He began 6 cycles of adjuvant chemotherapy treatment with Cisplatin (100 mg/m² day 1) and Gemcitabine (1000 mg/m² day 1 and 8) every 21 days. After radiotherapy these exams present variations in the intensity of the adipose tissue signal, explained both in the increase of the thickness of the periosteal component and in the thickness of the muscles, due to the inflammation and edema, secondary to the treatment, and to alterations of the medullary component of the bone. These variations are much more visible with MRI, that shows hypo and hyperintense areas, rather than with CT. The initial edema will leave space to a progressive fibrosis and to a reduction of muscular thickness 6 months after radiotherapy.

Naso-sinusal cancers are uncommon (about 0.8% of all the cancer and about 3% of head and neck cancers). The prognosis of these malignant neoplasms is unfavorable notwithstanding the several strategies of treatment (surgery and/or chemotherapy and/or radiotherapy). It is conditioned by the extension of the neoplasm and then the zone is rebuilt. The resection margins are defined by the diagnostic image. If the cancer invades the FCA, we remove the median part of its floor (the ethmoidal fovea and the cribrose lamina). The excision block is sometimes constituted of a part of FCA (dura mater, olfactory benderel and cerebral parenchyma), of both the ethmoidal blocks, of the medial bony wall of the orbit or of the papyraceous laminae of the two sides; it can also be part of the nasal septum, of the lateral walls of the nasal fossae as far as the pavimentum in the site where the tumour is more advanced. These surgical technique are very aggressive and they have often functional and aesthetic consequences.

Endoscopic rhinosinusal surgery was born in the Seventies. For fifteen years these technique was considered the best treatment of the phlogistic rhinosinusal pathology because of its microinvasiveness (4, 5). Later in the Eighties and Nineties the technique was also used for benign nasosinusal tumours (inverted papilloma, juvenile angiofibroma) and for the basicranium pathology (dural plasty for rhinoliquor fistulae and the treatment of the sellar pathology). In the second half of the Nineties a good technical development allowed their use for the nasosinusal malignant tumour pathology (6-8). In 1995 Jorrisen (6) applied this technique in 8 patients suffering from nasosinusal malignant tumour but he did not show the efficacy of the procedure. Goffart et al. (9) showed the efficacy of endoscopic surgical technique in 78 patients (66 of them were treated with the pure endoscopic approach). The study was
effected in two different centers; total survival at 2 and
5 years was respectively 63.4% and 52.3%. Ethmoidal
adenocarcinoma had better results, with a survival of
89.8% and 63.8% respectively after 2 and 5 years. Jor-
risen (6) has shown that tumours involving the fore
and posterior ethmoide, the upper side and the medial
part of the maxillary sinus or the sphenoidal sinus and
the front recess can be treated by an exclusive endosco-
pic approach. This technique is not advised for those
tumours involving the fore-inferior wall of the maxil-
lar sinus and the frontal sinus. If the cancer included
the maxillary sinus and frontal sinus the endoscopic
surgery is not indicated. Therefore, the tumours exten-
ding beyond the limits of the paranasal sinus are not
generally treated by intranasal surgery.

Radio and chemotherapy results are still debated.
Preoperative radiotherapy stabilizes the disease. In the
postoperative stage, it allows sterilization of the resi-
dual neoplasm; this combination guarantees a survival
rate of 45-50% at 5 years. An interstitial brachytherapy
with filiform sources of Iridium\(^{192}\) may be used if the
mass has limited dimensions. Radiotherapy makes use
of external bundles of high energy photons of ray type
(ERT) or Gy radiations of Cobalt. Doses of 60 Gy/20
fractions in 5 weeks are used in the first stages of the
pathology (\(T_{1\_2} T_{3\_2} N_{0}\)) when the surgical margins are
negative and in patients with risk factors who un-
derwent chemotherapy. Greater doses of 70 Gy are
used for patients with stage \(T_{2 \_3} T_{3\_2} N_{1-2\_3} N_{0}\) who un-
derwent only radiotherapy and did not present risk fac-
tors (10). It is also possible to use a further dose of 16-
20 Gy in 10 fractions in those cases in which the sur-
gical resection margins are positive. Postoperative ra-
diotherapy should begin 6 weeks after surgical inter-
vention. The utilization of systemic chemotherapy
aims at improving aggregate survival. High local doses
of chemotherapy have been correlated to a lower inci-
dence of collateral effects. The use of cisplatin supplied
locally in high concentrations, improves the response
and the control of the disease. A better control of the
pathology, of the peripheral metastases and of survival
is obtained with neoadjuvant chemotherapy, which re-
duces the tumour mass. On the contrary, adjuvant che-
motherapy is less tolerated especially in the more ad-
vanced stages when radiotherapy is usually used.

Follow-up depends on factors such as treatment
and the individual risk of relapse; it is generally perfor-
med every 1-3 months in the first year and every 6

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