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RESEARCH ARTICLE

BRAIN METASTASIS FROM UTERINE CERVICAL CANCER

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Abstract

Uterine cervical cancer usually spreads by local extension and through the rich lymphatic network to the retroperitoneal lymph nodes. However, brain metastasis from primary cervical cancer is extremely rare. They are usually seen late in the clinical course and have poor prognosis. We present a52-year-old woman with squamous cell carcinoma of the cervix who developed brain and other multiple metastases after 8-month treatment of the primary disease. The patient showed up neurologic symptoms and received one session of brain radiation therapy and steroids, then she died one month later.

Introduction:-

Uterine cervical cancer is the most common gynecologic malignancy among Moroccan women after the breast cancer. Metastasis of cervical cancer occurs by local extension and lymphatic dissemination. When distant, hematogenous metastases occur; the common sites of occurrence include liver, lung, and bone.[1] Brain metastases, however, are very rare.[2–4] They are usually seen late in the course of the disease, and have poor prognosis.[3,4] Due to the rarity of this disease, there are very few reports in the published work regarding the optimal management and prognosis of these patients.[3,5] We report a case of squamous cell carcinoma of the cervix with brain metastases and review the relevant literature.

Case Report

A52-year-old woman,has eleven children,and without any particular medical or surgical history, consulted in May 2019 for postmenopausal induced metrorrhagia of low severity associated with pelvic pain. These symptoms had been evolving for one year, without urinary or digestive disorders. On clinical examination, the patient was in good general condition with a WHO performance status of 0. On gynecological examination, an ulcerating lesion, bleeding on contact, measuring 6 cm at the expense of the uterine cervix, without extension to the vaginal walls or parametrium and without palpable inguinal adenopathy. A biopsy was then performed and showed an invasive moderately differentiated squamous cell carcinoma.

A thoracic-abdominal-pelvic CT scan revealed a 48mm* 57mm locally advanced cervical tumor process with locoregional lymph node extension. Overall, it was an International Federation of Gynecology and Obstetrics (FIGO) stage IIB invasive moderately differentiated squamous cell carcinoma of the uterine cervix. The patient received 46 Gy of pelvic radiotherapy with concomitant cisplatin-based chemotherapy followed by uterovaginal brachytherapy. Evaluation 1 month after brachytherapy found a high vaginal synechia with an unseen cervix, the

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vaginal walls are free. A pelvic MRI was performed post RCC showed regression of the cervical tumor process 26mm*23mm vs 48*57mm, persistence of bilateral proximal parametrial infiltration

The case was discussing in a multidisciplinary consultation meeting and then the decision was made to perform a surgery of Wertheim.

The evolution was marked in December 2019, a few days before the surgery, by the sudden appearance of an intracranial hypertension syndrome and a decrease in bilateral visual acuity. The examination found a convergent strabismus of the left eye with a right sensory-motor deficit. The rest of the somatic examination, was without abnormalities.

A brain CT scan showed a left parieto-occipital intra axial lesional process and osteolytic tissue lesion centred on the right frontal bonemetastatic(Figure 3). The thoracic-abdominal-pelvic CT scan showed a persistent cervical tumor process, infiltrating the uterine body, with a right obturator bone metastasis and pulmonary and hepatic metastases (Figure 2)

The patient received a bolus of corticosteroids and was then referred to her radiotherapist for further management. After a single session of encephalic radiotherapy and in view of the rapid deterioration of her general condition, the patient was put on symptomatic treatment and supportive care then she died 1 month later.

Figure 1:- Axial (C), sagittal (B) and coronal (A) CT images: showing a large uterine cervical tumor process, infiltrating the uterine body and adnexal parameters, measuring 05 cm in height.Noteright obturator osteolytic metastasis.

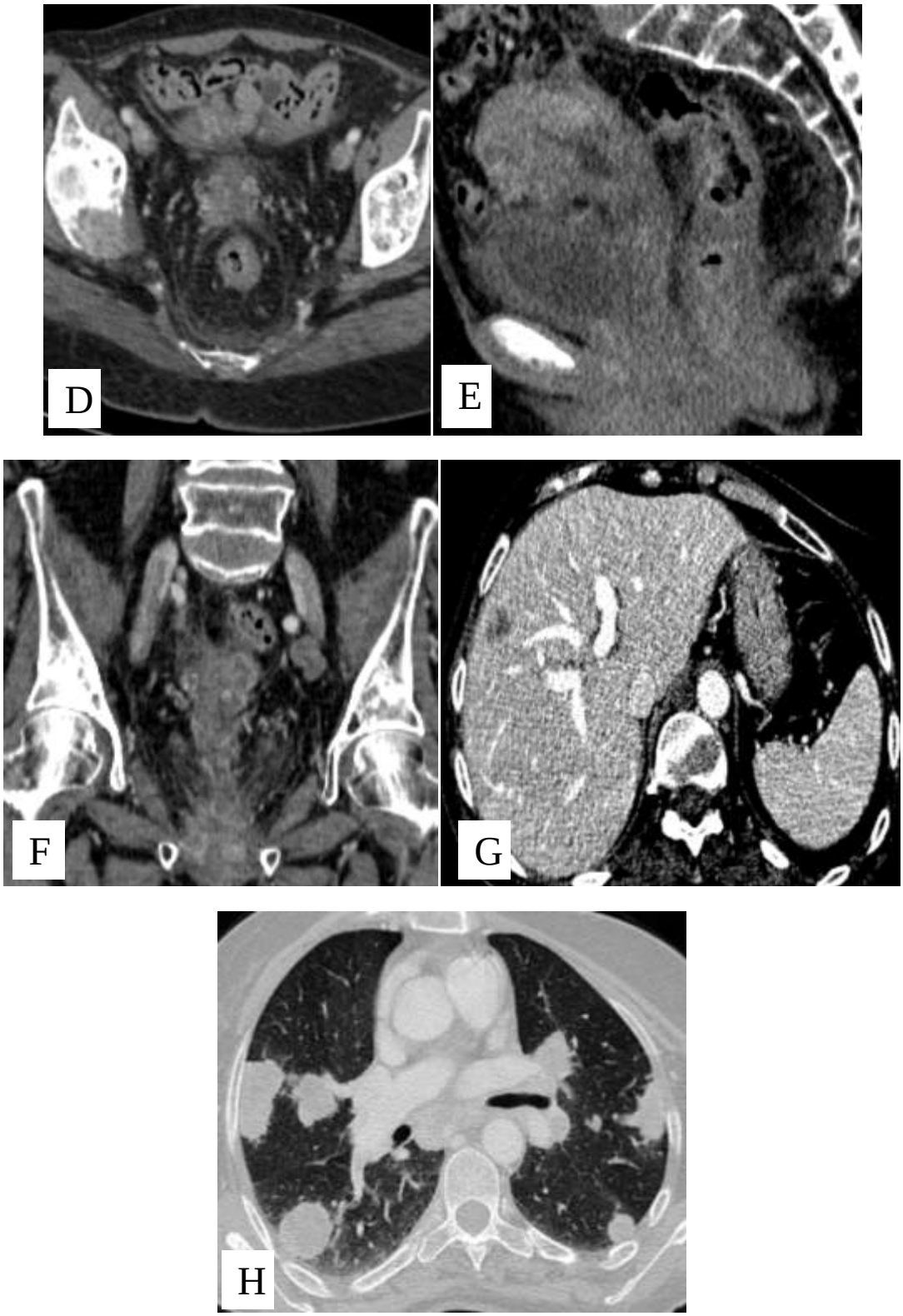

Figure 2:- Axial (a) sagittal (b) and coronal (c) scans: showing persistent cervical tumor process, infiltrating the uterine body, measuring 04 cm in height, with progression of right obturator bone metastasis. Axial sections through the thoracic (d) and abdominal (e) stages: showing pulmonary and hepatic metastasis (segment VIII).

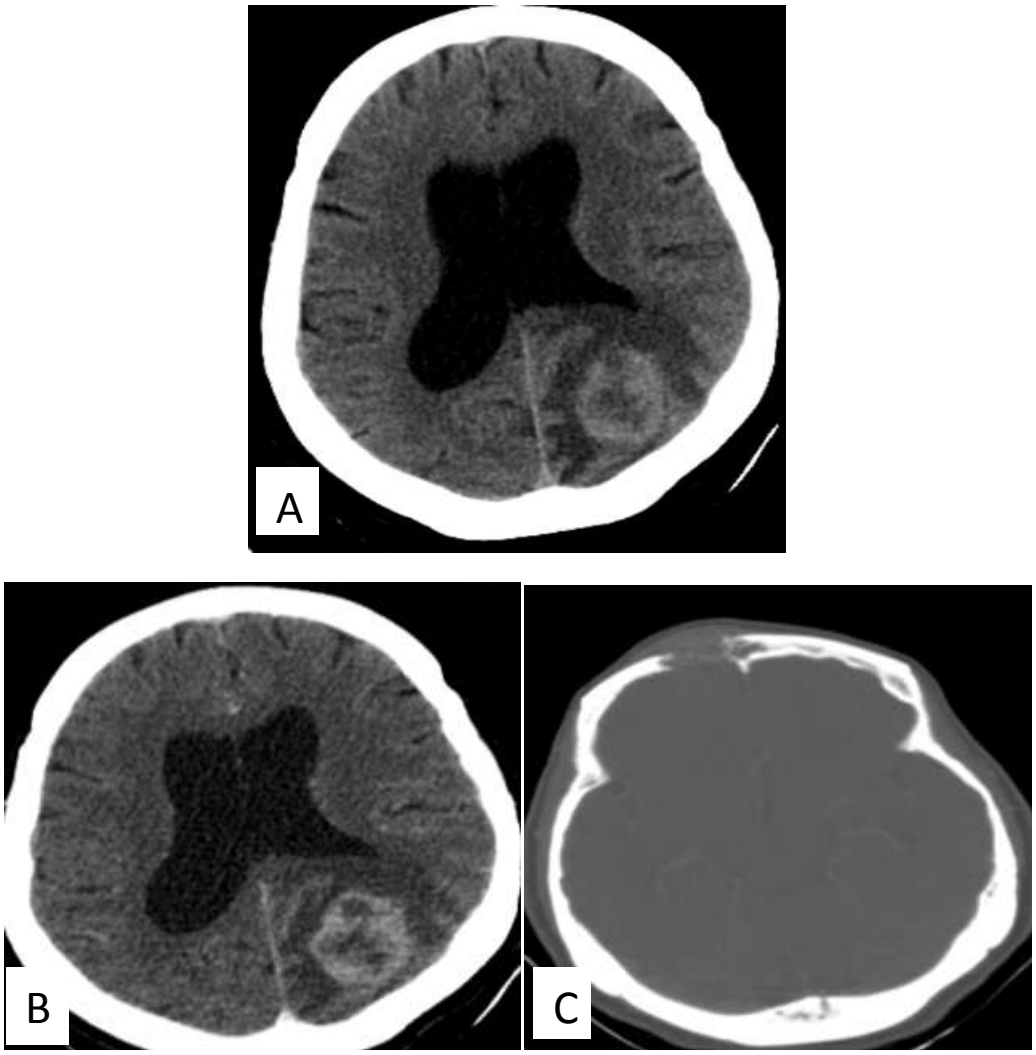

Figure 3:- Parenchymal window axial section scans before (A) and after contrast (B): showing a hemorrhagic, necrotic-centred, annularly enhanced, intra-axial left parieto-occipital lesion surrounded by extensive perilesional oedema, compressing the homolateral lateral ventricle. Axial slice CT image of the bone window (c): osteolytic tissue lesion centred on the right frontal bone.

Discussion:-

Brain metastases from cervical cancer were first reported in 1949 by Henriksen.[6] Few reports have been published since that time on this clinical entity.

Brain metastasis is thought to occur hematogenously through the vertebral venous system.[7] The frequency of distant metastases varies from 38 to 60% in various clinical and autopsy studies, with liver, lung, and bones being the most common sites in order of decreasing frequency.[1] Brain metastasis from cervical cancer is a rare event, with a reported incidence of 0.4–1.2%.[7–9] There are less than 100 cases in the English medical literature. However, the incidence of brain metastases from cervical cancer has increased recently. This increase may be related to a more effective treatment of the primary lesion and a better survival of these patients.[10] Brain metastases from cervical cancer tend to be poorly differentiated and are of several histological types.[11] Cervical squamous cell carcinoma was common in the published work,[7,9] but the histological type cannot predict whether cancer will metastasize to the brain.[11]

The median interval from initial diagnosis of cervical cancer to brain metastasis is variable, ranging from the time of first diagnosis to 8 years, with a mean of 12–18 months.[7–9,11] The location of the brain metastases was variable, with no clear predilection for anatomic site.[7]

But more than 80% of brain metastases are located in the supratentorial region of the brain. It may be related to the vascularity and the spatial characteristics of this region.[8,9,]Ikedaetal. reported the site of brain metastasis in all eight patients was the supratentorial region.[9]

Write et al. suggested that hematogenous metastasis form cervical cancer occurs first in the lungs and then in the brain.Most patients with cervical cancer had widely disseminated disease when brain metastases was diagnosed.[4]

Disease at other distant sites, especially the lung, is often associated with brain metastasis.Churaet al. found most patients with brain metastasis to have concomitant systemic disease.[7] According to Ikeda et al. all patients with brain metastases had metastases in other distant organs: bone, lung, skin, pleura, peritoneum and lymph nodes.[9]

However, Cormioet al. reported the brain was the only site of detectable disease in half of the patients with recurrent disease.[8] In an article by Mahmoud- Ahmed et al. brain metastases were the first site of distant disease for five out of the six patients.[11]

In general, headache and hemiparesis are the most common symptoms and signs of brain metastases.[7,8,]Neurologic symptoms were present in almost all patients: Ikeda et al. reported nausea and vomiting due to increased intracranial pressure were the most common symptoms; the next most frequent symptoms were convulsions and hemiplegia.[9] There is no standard treatment for brain metastasis from cervical cancer. The choice of therapy is based on the location and number of metastatic lesions, tumor size, the presence of disease at other sites, and clinical condition.

Current treatments for brain metastases consisted of surgery, whole brain radiation therapy (WBRT), and stereotactic radiosurgery (SRS).[11] Cormioet al. suggested that neurosurgical resection should be considered in patients with single brain metastasis in the absence of systemic disease or in emergency situations.[8] Robinson and Morris reported 6-year survival in a patient who underwent surgical resection of a single cerebellar metastasis and postoperative whole brain radiation.[2] These findings strongly suggest that neuro- surgical resection is an effective treatment for solitary brain metastasis in patients with uterine cervical carcinoma and that postoperative radiation therapy prolongs survival. Most of the authors consider neuro- surgical resection followed by radiation therapy the best option for single brain metastasis from cervical carcinoma.[1,8–10] Currently, WBRT is considered the main treatment of palliation in patients with multiple or inoperable brain metastases.[11] SRS delivers high- dose gamma radiation to a small intracranial target precisely and spares the surrounding health tissues. This process is particularly attractive in the treatment of multiple small metastases in the brain.

SRS is as effective as conventional surgery for local brain metastasis control and may also be used in inaccessible lesions.

There are no data in the published work about radiosurgery effects in brain metastasis from cervical cancer.

Unfortunately, in most cases, however, brain metastases are accompanied by other sites of metastatic cancer or are multifocal. Neurological symptoms were present in almost all patients, of which nausea, vomiting, and headache were most common, in most reported cases.[2,4,7–9] Although a significant positive effect on survival rate has not been achieved, due to the resulting attenuation of difficulties from related symptoms, radiotherapy and steroids are recommended for treatment of multiple brain metastases.

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