PLACENTAL METASTASIS OF A CHONDROMATOUS OSTEOSARCOMA OF THE SCAPULAR BELT

Lofo Heriniaina Andrianarison[1]*, Volahasina Francine Ranaivomanana[2], Malala Mampionona Miharasoa Razakanaivo[3], Bienvenue Solange Rasoanandrianina[4], Lanto Nirina Aimé Rainibarijaona[5], Nantenaina Soa Randrianjafisamindrakotroka[6]

Corresponding Author: -

Abstract: -

Pregnancy associated with cancer is rare and placental metastasis is exceptional. Breast cancer, cervix, melanoma and hematologic cancer are frequently associated with pregnancy. Bones and soft tissue tumor are rarely seen in pregnant woman. Actually, only disseminated cancer can induce placental metastasis. Although, growth factors are present during pregnancy, it seems that there is a defense mechanisms preventing neoplastic transplant within the placenta. However, gross can't always find placental metastasis, so histological examination must be done for the diagnosis. We report a case of a 27 years old woman at 36 weeks of amenorrhea with scapular belt tumor discovered few months before her pregnancy. Due to a rapid evolution of the tumor a caesarean section was indicated. The tumor biopsy and the histological finding in the placenta showed a chondromatous osteosarcoma with placental metastasis. Our aims are to describe histological features of that type of metastasis and to compare it to other metastases of bones and soft tissue tumor.

Keywords: - *pregnancy, placental metastasis, bones tumor, osteosarcoma*

INTRODUCTION

The association of cancer and pregnancy is a rare pathology and concerns about 1/1000 pregnancies. Placental metastases are exceptional. This rate tends to increase these recent decades due to the delay of the age of pregnancies for women [1]. The cancers frequently associated with pregnancy are respectively breast cancer, cervix cancer, melanoma and hematological cancer [2]. The association of osteosarcoma and pregnancy is quite rare and the placental metastasis is exceptional. We report the case of a placental metastasis of a chondromatous osteosarcoma. Our aims are to describe the histological aspects of this type of metastasis and to compare with the histological characteristics of other metastases of bones and soft tissue cancers.

Case report

It was a twenty seven years old woman who had a scapular tumor developing for a few months before her pregnancy. She was subject of caesarean section at 36 weeks due to a rapid developpement of the tumor. Scapular tumor biopsy was performed at the same time as the fetal extraction. The biopsy specimen was the shape of two of white fragments measuring 2,8 and 1,8 cm. The gross of the placenta was performed after 72 hours of fixing in 10% formalin. The umbilical cord measured 56 cm, paracentral insertion and presented 3 vessels. Wharton's jelly was normal in gross examination. The membrane was translucent and showed no macroscopic abnormality. The placenta measured 16 x15 x 3,7 cm and weighed 450g with round shape and normal configuration. The chorial face presented congestive and covering chorionic vessels. The basal face was macroscopically normal. On histological examination, the scapular biopsy showed anarchical proliferation sometimes fusiform cells, with marked atypical cytonuclear and high mitotic index in a mineralized stroma. In places, chondromatous differentiation is observed with high grade cytonuclear atypical chondrocytes in a metachromatic stroma. This histological aspect evoked a chondromatous osteosarcoma. For the placenta, the umbilical cord and the membrane were of a normal histological structure without funiculitis nor chorioamnionitis. The decidual plaque was of normal aspect with a few thrombosed spiral arteries. The intervillous space at the level of basal plaque was filled with deposit of fibrin and discreet hemorrhage. In places, we observed some foci of calcification sometimes containing atypical cells of identical morphology to those observed in the scapular tumor. Trophoblastic nuclei were numerous. Chorial villosities were in variable sizes, covered by a layer of trophoblastic cells containing 4 to 6 blood vessels. No atypical cell was observed in intra villous.

The histological aspect showed a perfusion trouble syndrome and an intervillous metastasis of the osteosarcoma described above. So, the diagnostic was a chondromatous osteosarcoma of the scapular belt with intervillous placental metastasis without fetal metastasis.

Discussion

The presence of malignant tumor during pregnancy is relatively rare and affects about 0,07 to 0,1 of all cancers. Cancers more often associated with pregnancy are respectively breast cancer, cervix cancer, melanoma and hematological cancer [2] [3]. Cancers at high risk of metastases to conception product level are respectively the melanoma (32%), leukemia and lymphoma (13%), breast cancer (13%), lung cancer (11%), sarcoma (8%) and the gastric cancer (3%) [4]. In Figueiro-Filho et al, series, extending on ten years (2004-2014) among the 48 cases of sarcoma associated with pregnancy; osteosarcoma is the most common with a rate of 26% (n=10), followed by the liposarcoma 18% (n=7) and ewing sarcoma 16% (n=6) but no placental metastasis was observed [3]. According to Zarkavelis G and al, (1977 to 2016), 24 cases of osteosarcoma were associated with pregnancy and were osteoblastic, chondroblastic, fibroblastic, paraostal and high grade osteosarcoma but no placental metastasis has also been seen [1]. To our knowledge, our case would then probably be the first case of chondromatous osteosarcoma associated with pregnancy with placental metastasis. According to the literature, osteosarcomas are mainly localized at the extremities level. The most common are femur 42%, tibia 19%, and humerus 10%, the other probable locating are skull or jaw 8% and pelvis 8% [4]. In our patient, the tumor was in advanced stage and extended over the entire scapular belt.

Regarding cancers associated with pregnancy in general, for Vinu Choudhary et al, only cancer in metastasis dissemination phase seems to be able to give placental metastasis [3]. Placental production of growth hormone and chorionic gonadotrophin leads to significant change in the hormonal environnement of pregnant women, which can influence the growth and the state of cancerous cells. According to Steffensen T et al, sarcomatous cells greatly express beta HCG by immunochemistry [4]. Hematogenous dissemination is probably the initial mechanism for the occurrence of placental metastasis of cancers of a pregnant woman, but their rareness in spite of the importance of the sanguine sequestration in the intervillous chamber has suggested the existence of defense mechanisms preventing neoplastic transplant within the placenta [5]. The placenta can present an unfavorable microenvironnement for cancerous cells in general [6].

In our study, macroscopic examination of the placenta was normal. By the literature, only 50% of placental metastasis is macroscopically detectable [7]. On histological examination, two ways of placental metastasis have been described: either that tumor cells invade intervilllous spaces or they cross the barrier of the placental villosity and become intra chorial. Fetal metastasis only occurs with intrachorial invasion [8] [9]. In our case, atypical cells surrounded by mineralized substance were localized in the intervillous space. Villosities were unhurt from neoplasm, wherefore the metastasis was intervillous and non intrachorial which allowed removing fetal metastasis.

For the care of the pregnant patients with osteosarcomas, the American College of obstetrical and Gynecology recommends that a surgical indication should never be refused whatever the pregnancy age. For the mother, the intervention should not delay based on the pregnancy with a particular attention to chemotherapy and radiation therapy.

Conclusion

Osteosarcoma is the most common sarcomatous tumor during pregnancy and presents a high risk of metastasis in pregnant woman. However, placental metastasis is exceptional. Therefore a systematic examination of the placenta or conception product is recommended for the diagnosis of placental metastasis and probably fetal.

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