Magnetic Resonance Imaging of Vulvar Choriocarcinoma Following Partial Molar Pregnancy: A Case Report

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Abstract

We describe the magnetic resonance imaging (MRI) findings in a 26-year-old woman with a clinical diagnosis of vulvar choriocarcinoma four months after suction evacuation of a histologically confirmed partial molar pregnancy. She presented with menorrhagia and a serum β-human chorionic gonadotropin (β-hCG) level of 30,292 IU/L. Pelvic MRI demonstrated a 3.6 × 2.8 × 2.4 cm right sublabial mass with heterogeneous T2 hyperintensity, hemorrhagic components, flow voids, restricted diffusion and avid enhancement, with non-enhancing areas interpreted as necrosis. The uterus and adnexa appeared normal. Following EMA-CO chemotherapy, β-hCG decreased to 464 IU/L after the first cycle and 0.32 IU/L after the fifth cycle. Follow-up MRI showed no significant residual vulvar lesion, and the patient was reported to be asymptomatic. This case illustrates pretreatment and follow-up MRI findings in clinically diagnosed vulvar choriocarcinoma in the context of an antecedent molar pregnancy.

Keywords: Gestational Choriocarcinoma, Vulva, Magnetic Resonance Imaging (MRI), Gestational Trophoblastic Neoplasia (GTN)

Patient and Observation

The patient was a 26-year-old woman who presented with complaints of menorrhagia. She had undergone suction evacuation for partial molar pregnancy 4 months ago, which was confirmed by histopathological examination. Following an initial decrease in serum Beta human chorionic gonadotropin (β-hCG) in the first month following the procedure, she had failed to follow up and the β-hCG level at the time of presentation was 30,292 IU/L.

Magnetic Resonance Imaging (MRI) of the pelvis was done using 1.5T MRI (AVANTO Siemens Healthineers, Erlangen, Germany). Standard institute protocol was followed, signal acquisition was done using phased array body coil. T1 sagittal, T2 axial, sagittal and coronal, 3D SPACE T2, Short Tau Inversion Recovery (STIR) coronal, T1 weighted fat suppressed axial and dynamic contrast enhanced images and axial diffusion weighted imaging (DWI) and gradient (GRE) sequences were used. These revealed a well-defined mass lesion in the right sublabial region, measuring 3.6 × 2.8 × 2.4 cm in its greatest dimensions. On T1 weighted images, the lesion was predominantly hypointense, with few internal hyperintensities. On gradient images, these T1 hyperintensities showed blooming, indicating that these were areas of hemorrhage. On T2 weighted images, the lesion was heterogeneous, with predominant hyperintensity and a T2 hypointense rim. Few flow voids were noted in the center of the lesion. Few peripheral areas of restricted diffusion were noted on DWI. The uterus and adnexa appeared normal. On contrast administration, there was intense peripheral enhancement of the lesion, especially in the regions of restricted diffusion. Intense enhancement was also noted in the center of the lesion, where flow voids were observed on T2 weighted images. Few confluent non enhancing areas which were hyperintense on T2 weighted images were also observed, indicative of necrosis. There was no evidence of invasion of the vaginal wall or enlarged pelvic lymph nodes (Figures 1, 2, 3 and 4).

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Pretreatment MRI

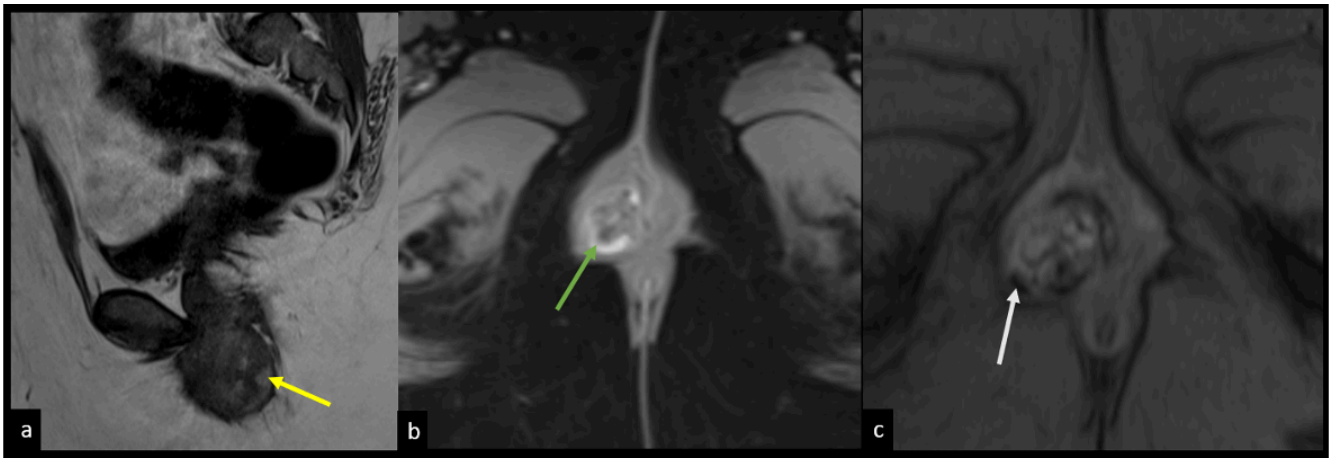


Figure 1. (a) Sagittal T1 image showing a hypointense lesion with internal hyperintensities (yellow arrow). (b) Axial fat-suppressed T1 image showing persistent hyperintensities (green arrow). (c) Axial gradient image showing blooming foci within the lesion in the region of T1 hyperintensity (white arrow).

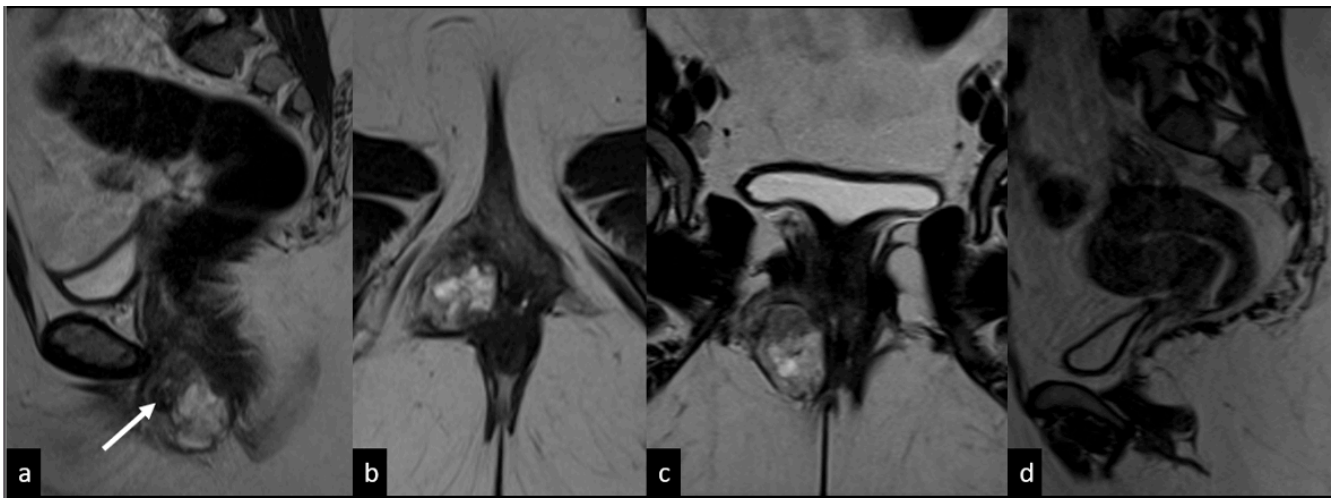


Figure 2. T2 sagittal (a), axial (b) and coronal (c) images showing a heterointense lesion with internal flow voids (white arrow). (d) Sagittal T2 image showing a normal uterus and endometrial cavity.

Treatment and Follow-up

Chest X-ray was normal. On the basis of the clinical presentation, elevated β-hCG and MRI findings, a clinical diagnosis of vulvar choriocarcinoma was made. She was started on chemotherapy (EMA-CO regimen: Etoposide, Methotrexate, Actinomycin, Cyclophosphamide and Vincristine). β-hCG decreased progressively to 464 IU/L following the first cycle and subsequently to 0.32 IU/L following the fifth cycle. The patient was reported to be asymptomatic. Follow-up MRI was performed to check for any residual lesion or sequelae. This revealed a normal uterus (Figure 5) and adnexa with no significant residual lesion in the vulva.

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Diffusion-weighted MRI

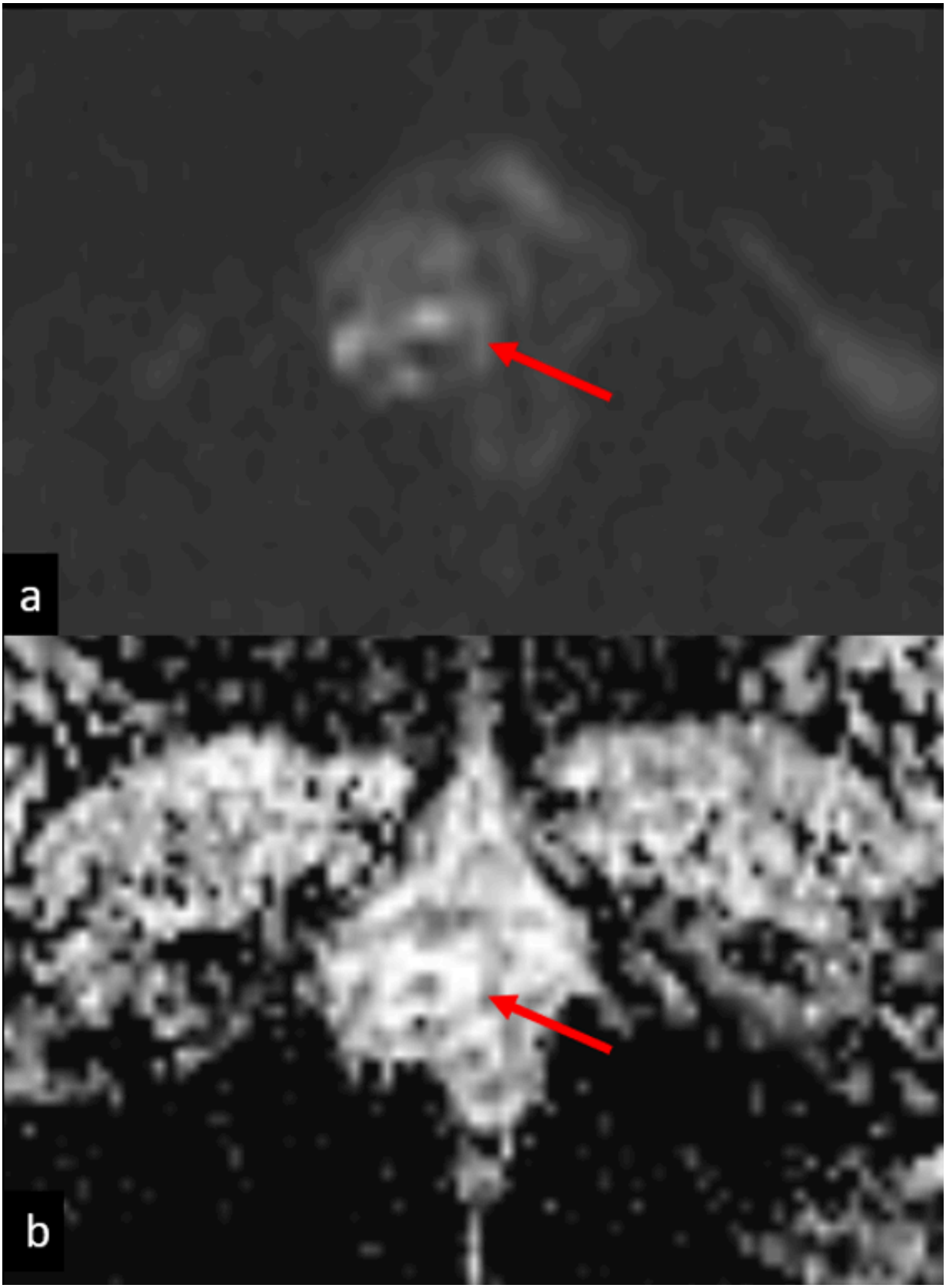


Figure 3. Diffusion-weighted image (a) and ADC map (b) showing a few peripheral areas with restricted diffusion.

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Contrast-enhanced MRI

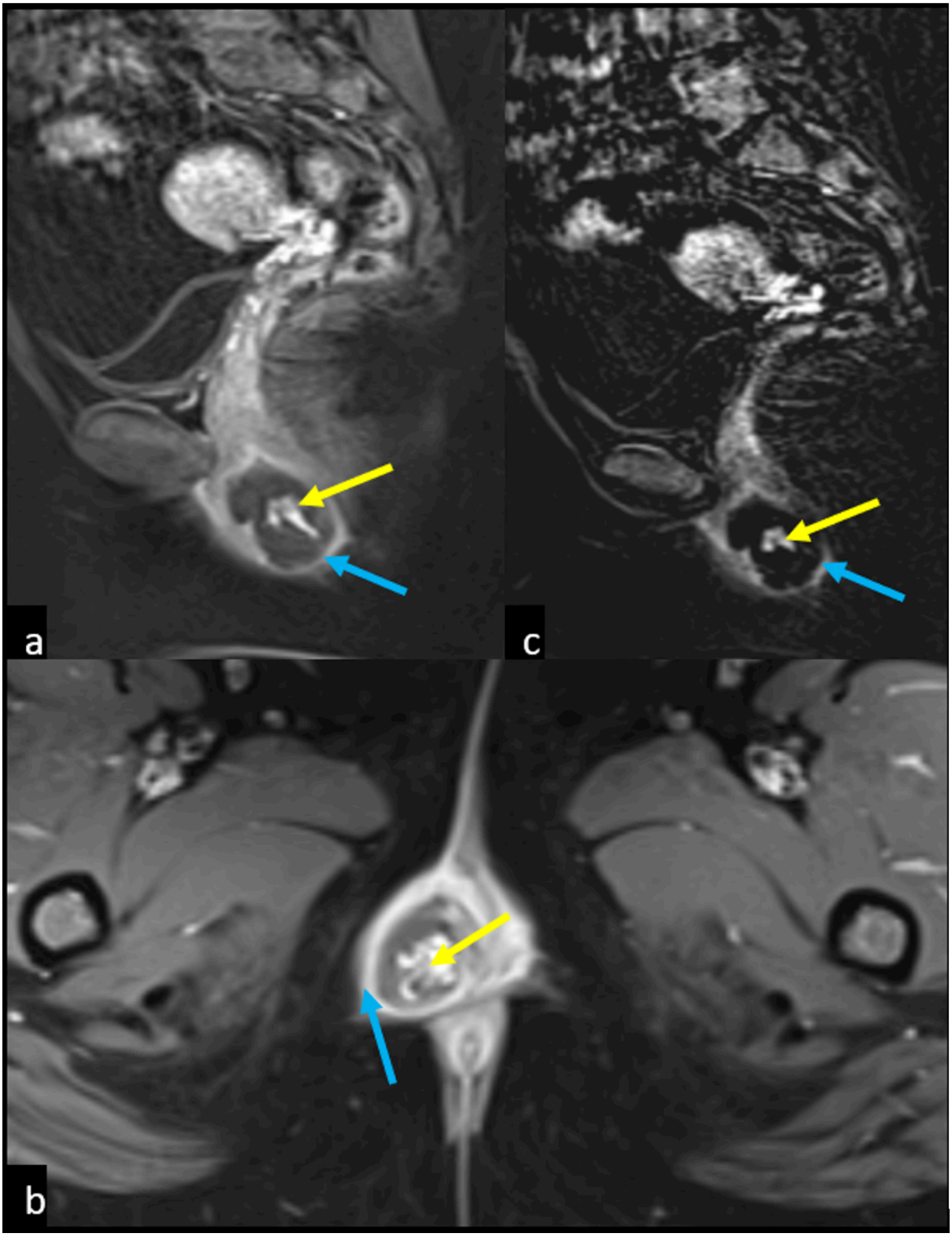


Figure 4. Contrast-enhanced fat-saturated T1 sagittal (a) and axial (b) images and subtraction image (c) demonstrate peripheral enhancement (blue arrow) of the lesion, with intense enhancement in the center at the region of flow voids (yellow arrows).

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Follow-up MRI

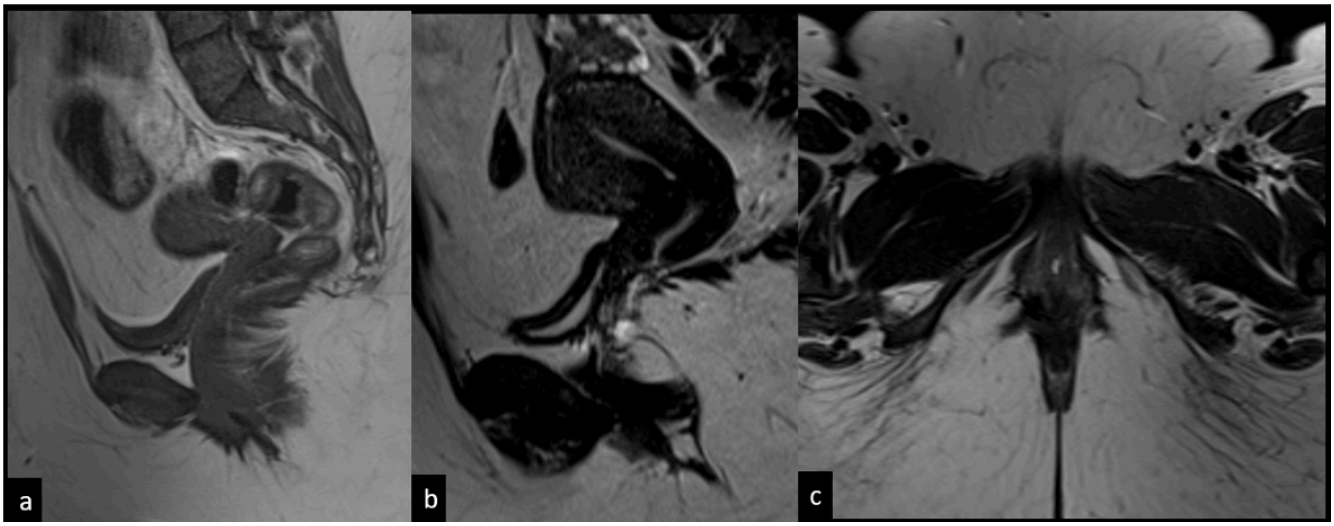


Figure 5. Sagittal T1 (a), sagittal T2 (b) and axial T2 (c) images after five cycles of chemotherapy show no demonstrable residual lesion.

Discussion

Gestational choriocarcinoma is a malignant form of Gestational Trophoblastic Neoplasia (GTN) and can be associated with any type of coincident or antecedent pregnancy [1]. Extrauterine choriocarcinoma is extremely rare and the cervix is the commonest site [2]. Published reports describe both primary and metastatic vulvovaginal choriocarcinoma [3, 4, 5, 6, 7, 8]. Bhattacharyya et al. reported two metastatic vulvovaginal cases [5]. The commonest presenting feature is abnormal vaginal bleeding with elevated β-hCG, as seen in our case [2]. These lesions are usually hypointense on T1 weighted images with internal areas of hyperintensity indicating hemorrhage. On T2 weighted images, they are heterointense with a hypointense rim. On contrast administration, they exhibit peripheral enhancement with non-enhancing areas indicating necrosis [7,8]. The imaging features in our case are similar to all the features thus described. These masses are highly vascular, as evidenced by the flow voids and avid enhancement in the center of the lesion in our case [2,7,9]. Choriocarcinomatous lesions contain abundant venous plexus without valves, which makes them prone to torrential hemorrhage, due to which biopsy is not routinely advised when β-hCG is rising or elevated [10]. These tumors are also highly chemo sensitive and carry a good prognosis if treated [10]. In our case too, there was a significant fall in β-hCG following the first cycle of chemotherapy itself and no significant residual lesion on follow-up MRI.

Conclusion

This case illustrates a clinical diagnosis of vulvar choriocarcinoma in a woman with elevated β-hCG following a partial molar pregnancy. MRI characterized the right sublabial lesion before treatment and showed no significant residual lesion on the reported follow-up examination. The accompanying fall in β-hCG documents the reported treatment response; it does not establish a long-term outcome.

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Conflict of Interest

The authors declare that there were no conflicts of interest within the meaning of the recommendations of the International Committee of Medical Journal Editors when the article was written.

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