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A harmless evil: Giant fungating benign breast mass in an adolescent mimicking malignancy - Case report

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ABSTRACT

INTRODUCTION: Juvenile giant fibroadenoma is a rare type of fibroadenoma characterized by rapid growth of a breast tumor in an adolescent. Benign in nature, they rarely present as fungating and ulcerating tumors. Benign tumors masquerading as malignancies are surgical conundrums. No co nsensus exists yet on the management of these cases. We aim to discuss the dilemma in managing a bleeding, fungating giant fibroadenoma in an adolescent female and highlight risks of alternative therapies.
PRESENTATION OF CASE: A 19-year-old lady presented with a bleeding, fungating breast mass worsened with topical herbal concoction. Examination revealed a 10 × 15 cm fungating breast mass that obliterated her nipple- areolar complex (NAC). Computed Tomography (CT) scan reported a huge heterogeneously enhancing mass 10.6 × 14.5 × 15.1 cm with loss of normal fat plane with the overlying skin but a clear fat plane with the pectoralis muscle posteriorly.
DISCUSSION: Giant breast masses that fungate and ulcerate usually indicate a sinister pathology. Traditional remedies have been reported to exacerbate growth. In cases where most of the breast parenchyma and NAC has been destroyed, it is no longer possible to proceed with breast conserving techniques. Breast reconstruction is crucial in adolescents and should be tailored to the patient's existing breast size as well as body habitus.
CONCLUSION: In juvenile giant fibroadenomas where breast parenchyma and NAC has been destroyed, breast reconstruction is the goal. The lack of consensus in both diagnosis and management further compounds the difficulty in dealing with this sensitive population. Awareness needs to be raised regarding negative effects related to traditional medicine.

1. Introduction

Breast masses in adolescents are rare with a prevalence of 3.25 % in women between the ages of 10–21 years old [1]. These masses are commonly benign, with fibroadenomas having the highest prevalence, constituting 68 % of all breast masses in female adolescents [2]. A lack of consensus regarding the nomenclature and classification of fibroadenomas [3] further complicate efforts to establish a specific guideline on managing them [4,5]. Classically divided into common fibroadenomas, giant fibroadenomas, juvenile fibroadenomas and phyllodes tumors [2], considerable confusion exists in attempting to establish the diagnostic criteria for juvenile and giant fibroadenomas [6]. Giant fibroadenomas are a rare sub-type of fibroadenomas [7] with some authors classifying them quantitatively when its size reaches greater than 5 cm and/or weigh more than 500 g [6]; while others describe them as masses encompassing at least 80 % of the breast [8]. Juvenile fibroadenomas are used to describe fibroadenomas arising at an age ranging from 11 to 21 years old with rapid growth [8]. Giant fibroadenomas among adolescents are rare [4] and these fast-growing masses can cause compression to the surrounding normal tissue [2] leading to dilated veins, thinning of skin and occasionally ulceration [4,6]. However, to our knowledge only one case of a giant fibroadenoma presenting as a fungating, ulcerating and bleeding mass has been reported so far [9]. When a benign mass masquerades as malignant in a young woman, it results in a diagnostic and therapeutic conundrum. Here we discuss such case and the challenges we faced in her management.

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Fig. 1. Gigantic right fungating and ulcerating breast mass covered with a crusted herbal paste, encompassing 90 % of patient's breast. (A) Anterior view. (B) Left oblique view.

2. Presentation of case

A 19-year-old unmarried lady presented with a giant fungating and ulcerating right breast mass of 10 × 15 cm. It was initially a 1 × 1 cm painless lump at the lower outer quadrant with no skin changes, nipple discharge or nipple retraction for the past 4 years. There were no significant changes until two months prior, where there was a rapid increase in size, accompanied with ulceration and occasional bleeding. It was associated with mild loss of weight (Body Mass Index:16) and appetite. She denied previous or current use of any medication and was not sexually active. She attained menarche at 12-year-old with regular menstrual cycles. She did not have any family history of breast malignancy. She was unemployed, living at home with her family. A biopsy was performed at a district hospital. Further rapid increase in size with fungating and bleeding from the mass then occurred. Biopsy revealed a fibroepithelial tumor either juvenile fibroadenoma or benign phyllodes tumor. A biopsy was repeated as the mass was clinically highly suspicious of a malignancy and it was reported as a giant fibroadenoma. Unfortunately, while awaiting the biopsy results, she became anxious and sought alternative treatment based on her family's recommendation. A traditional healer applied an herbal paste that lead to foul-smelling, purulent discharge from the mass and further explosive growth. She was then admitted to the district hospital for intravenous antibiotics and Computed Tomography (CT) scan. Her CT scan was reported as a huge heterogeneously enhancing mass 10.6 × 14.5 × 15.1 cm with loss of normal fat plane with the overlying skin but a clear fat plane with the pectoralis muscle posteriorly. Multiple enlarged right axillary lymph nodes with loss of fatty hilum with multiple lung nodules at the postero-basal segment and apical segment of right lower lobe were noted. The CT findings were suggestive of phyllodes tumor with malignant transformation or breast carcinoma. She was then referred to our center for tertiary care management.

At our center, she initially had profuse bleeding from the mass which stopped on compression. Her vitals were stable, she had to stoop while walking and her right breast had to be supported with both her hands due to the weight of the massive mass. Her right breast nipple areola-complex (NAC) was destroyed by the giant fungating, ulcerating 20 × 20 cm mass (Fig. 1A, B). Her other systemic examination was unremarkable, and her lungs were clear with equal air entry. A senior general surgeon with more than ten years of experience proceeded with a mastectomy (Fig. 2), excision of lymph nodes and immediate breast reconstruction by a plastic and reconstructive surgeon (more than ten years of experience) with a pedicled myocutaneous latissimus dorsi flap (Fig. 3) was performed. Total duration of the surgery was four hours. The total weight of the mass plus the breast tissue excised was 1600 g with foul- smelling discharge, a crusted herbal paste overlying the ulceration and a small discrete lump at 12 o'clock about 2 × 1.5 cm. Two right axillary lymph nodes were excised. Immediate breast reconstruction with NAC reconstruction was performed.

Histopathological examination revealed a giant juvenile fibroadenoma characterized by proliferating ductal epithelium and stroma with the glands mainly arranged in peri-canalicular pattern, exhibiting epithelial hyperplasia. The stroma is hypocellular in most areas with absence of mitosis (Fig. 4). Her axillary lymph nodes showed reactive lymph nodes with no malignancy seen. After 7 days in a surgical ward she was discharged home well. At 6 months follow-up, her breast and donor site wounds healed with no morbidity and she has acceptable symmetry in bilateral breasts (Fig. 5). At 3 years post-surgery, she is happy with the result and able to wear a bra comfortably. She was able to perform her usual activities with no apparent impact on her psychosocial well-being. There was a 50 % loss of the neo-nipple projection however, she is satisfied with the areolar color and overall outcome.

3. Discussion

Given the rarity of giant fibroadenomas, more so in adolescents, it is difficult to establish a diagnostic and management gold standard [4]. Breast masses in adolescents are rarely malignant [2]. They are usually managed conservatively with monitoring of size clinically or ultrasonography [4,11]. In our patient, her breast mass was extremely large, fungating, ulcerating and bleeding. Therefore, she could not undergo an ultrasonogram or be managed conservatively. Fungating, bleeding breast masses with rapid growth usually have a sinister pathology. Despite her initial history of a small slow-growing breast mass, its subsequent accelerated growth with suspicious clinical features was highly suggestive of a malignant lesion. This unusual behavior for a benign tumor could have been triggered by the application of topical herbal concoction after the first biopsy. There have been reports of breast cancer tumor growth acceleration and ulceration after application of herbal remedies [10] but reports of such behavior in benign masses are rare. The ulceration could be due to thinning out of the overlying skin. This could be attributed to the rapid expansion of a mass causing compression to the surrounding structures and possible steroid content commonly found in unlicensed topical herbal remedies. The risk of using 'harmless' herbal concoctions on breast masses needs to be highlighted to raise public awareness. 'Innocent' organic traditional remedies are popular among certain communities around

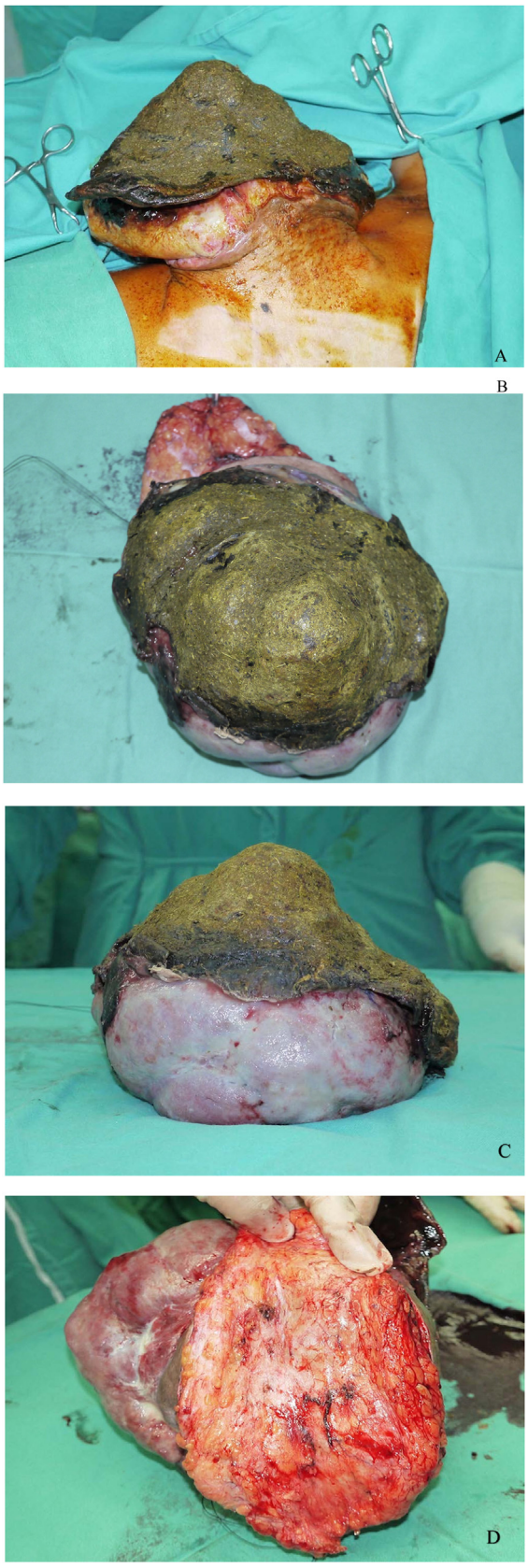

Fig. 2. Intraoperative findings of right total mastectomy, total breast mass weighed 1600 g covered with a crusted herbal paste. (A) Medial view of right breast mass covered with an adherent crusted herbal paste. (B) Anterior view of right breast mass post mastectomy. (C) Inferior view of breast mass post mastectomy. (D) Inner view of base of breast mass after removal of herbal paste.

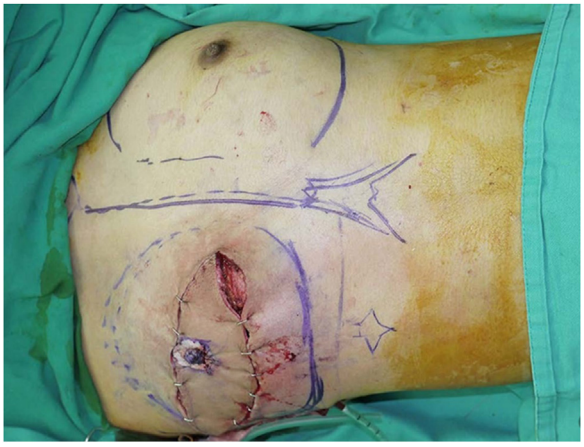

Fig. 3. Immediate Breast Reconstruction with pedicled myocutaneous Latissimus Dorsi Flap.

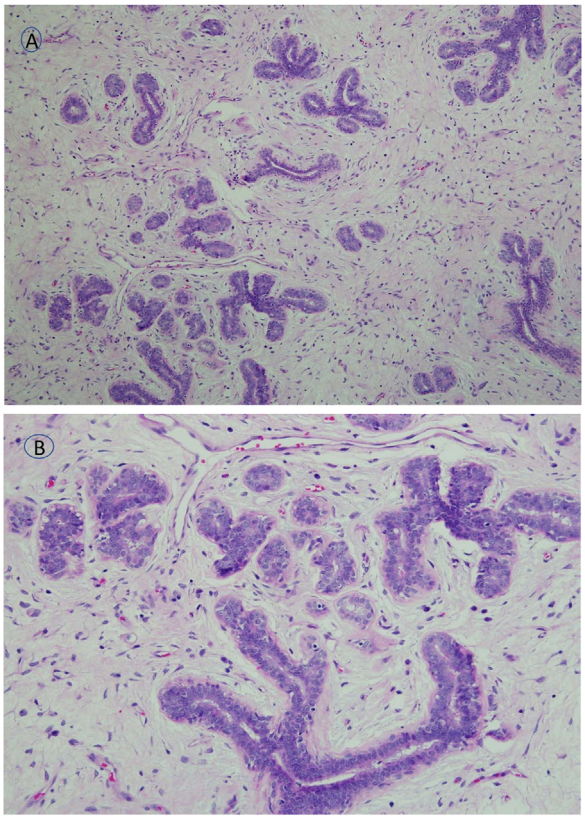

Fig. 4. Microscopic findings of the fungating breast tumour. (A) Tumor cells are composed of proliferating stroma and ductal epithelium mainly arranged in pericanalicular pattern and lacking leaf-like growth pattern (H&E stain, ×100). (B) Higher magnification depicted some degree of epithelial hyperplasia involving the ductal epithelium within hypocellular stroma (H&E stain, ×200).

the world and can be detrimental when they lead to exacerbation of growth.

Diagnostic biopsies in adolescents are commonly performed with fine needle aspiration but in fibroadenomas with risk of rapid growth, the safest method remains complete surgical excision to rule out malignancy [4,12]. Adolescents with fibroadenomas are commonly managed conservatively as rates of clinical regression of fibroadenomas in adolescents are 10–40% [13]. Some authors advocate total excision, as the remaining distorted breast parenchyma can fill the void left by the excised fibroadenoma [4]. In giant fibroadenomas with destruction of more than 50 % of surround-

Fig. 5. Six months post right total mastectomy and immediate breast reconstruction with pedicled myocutaneous latissimus dorsi flap, anterior view.

ing normal breast parenchyma [13] and its NAC, we believe a more aggressive approach (mastectomy) is warranted. As is the case for our patient, their NAC cannot be salvaged, and breast reconstruction is inevitable as most of the breast parenchyma has been destroyed by the mass [15]. We did not have many reconstructive options as she was very thin and lacked excess tissue at her abdomen. Her left breast was a cup size A and with the pedicled myocutaneous latissimus dorsi, we could harvest enough muscle and subcutaneous tissue for symmetrical breast reconstruction. She had also refused implant-based reconstruction due to her religious beliefs and restrictions. Immediate NAC reconstruction was performed to reduce the psychological impact of living with a breast san NAC. She lived in a remote area and acknowledged difficulties coming to our center for further surgeries. Adolescent females are a sensitive population as they are still experiencing breast changes and growth [14]. Therefore, before embarking on any intervention, one must consider its psychosocial impact. Detailed pre-operative discussion is imperative to manage patient's expectations and ensure patient's satisfaction [14].

The major limitation of our study is that this is a singular case being reported and has limited applicability in countries where implant-based reconstruction is culturally acceptable. This work is reported in line with the SCARE 2018 criteria [16].

4. Conclusion

Giant fungating, ulcerating fibroadenomas in adolescents are rare. The lack of consensus in both diagnosis and management compounds the difficulty in dealing with this sensitive population. Risks of topical herbal remedies with regards to breast masses should be highlighted to the public.

Declaration of Competing Interest

The authors reported no declarations of interest.

Funding

All authors have nothing to declare.

Ethical approval

This study was exempted by the Institutional Review Board of the Hospital of University of Sciences Malaysia code USM/JEPem19120939.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

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Data curation: Heng SSL.
Formal analysis: Heng SSL.
Methodology: Heng SSL.
Project administration: Yahya MM, Mat Saad AZ, Wan Sulaiman WA.
Visualization: Heng SSL, Mat Saad AZ.
Writing – original draft: Heng SSL.
Writing – review & editing: Mat Saad AZ, Wan Sulaiman WA.
Approval of final manuscript: all authors.

Registration of research studies

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