Giant Juvenile Fibroadenoma During Covid-19 Pandemic; Challenges and Solutions

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ABSTRACT

Breast lump in adolescents is rare, accounting for around 3.2% and mostly are benign. However, its presence causes anxiety to the young patients and their parents. Giant juvenile fibroadenoma is even more uncommon, approximating to only 0.5% of all breast lump cases. Major challenges in managing juvenile breast lump include getting to the accurate diagnosis, selecting the best surgical approach, attaining the best cosmetic outcome, and preserving normal breast tissue for future breast feeding. Deciding the optimal time for surgery is another concern during Covid-19 pandemic as the intention to treat needs to balance with the risk of contracting the pandemic. Here we present a case of a 15-year-old girl who presented with a progressive growing unilateral right breast lump for the past 6 months, associated with mild discomfort and overlying skin changes. Examination revealed a huge lump occupying the entire right breast, measuring 10cm x 10cm. Ipsilateral axillary lymph node was non-palpable, and the contralateral breast was normal. Ultrasound of the breast showed heterogenous hypoechoic lesion with no malignancy features. Tissue biopsy of the lesion revealed a benign fibro-epithelial lesion. She subsequently underwent right breast excision biopsy, and the histopathology revealed a giant juvenile fibroadenoma.

Keywords: Giant juvenile fibroadenoma, Covid-19 pandemic, fibro-epithelial breast lesion, surgery in adolescent

INTRODUCTION

The prevalence of breast masses among teenage girls is only approximately 3.2% (1). Majority cases are benign in nature, including fibroadenoma and fibrocystic breast diseases. Patient with small lump can be safely treated conservatively rather than enduring surgery. Key factors that aid in diagnosis includes the duration of the mass present with its associated symptoms; mass affects one breast or both, rate of the mass is growing and any strong family history of breast diseases (2).

Regardless of age, patients with breast lump will have to go through triple assessment (3). The diagnostic accuracy of triple assessment in diagnosing breast lesion reaches sensitivity and specificity of more than 95% (3). Following clinical assessment, ultrasound is the frequent imaging modality used as the initial imaging tool as it poses no risk of radiation to the developing breast. Upon radiological assessment, breast lesions will be stratified into risk of malignancy based on criteria commonly known as Breast Imaging-Reporting and Data System (BiRADS) classification to determine the need for further histopathological assessment. The decision for ensuing for histopathological may be detrimental to a growing child's experience, hence unnecessary biopsies should be avoided. If BiRADS shows a significant risk for malignancy, confirmatory tissue biopsy would take place in the form of core biopsy, ideally via image guided sampling (3). Juvenile fibroadenoma however is rare, accounting for only 0.5% of all diagnosed fibroadenoma and they can grow quite large and caused prominent asymmetry of the breast (4).

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Dealing with adolescent breast lesions is tricky. Careful planning is essential as major disruption during the surgical intervention may interfere with the normal developmental process of the maturity of the breast tissue. Clinching such diagnosis during the covid-19 pandemic era also possess a challenge in deciding the ideal timing for intervention as to balance out the risk of exposure and spreading of the disease versus the risk of allowing the breast lesion to grow extensively. Therefore, here we present our recent experience with giant juvenile fibroadenoma in the era of Covid-19 pandemic.

Case report

A 15-year-old girl complained of having a right breast lump which is rapidly increasing in size within the past 6-months. It was associated with minimal skin hyperpigmentation and mild discomfort. There were no nipple discharge present and absence of malignancy constitutional symptoms (TB night sweat also known as constitutional symptoms). She attained menarche at 12-year-old, not sexually active and still nulliparous. There was no close or immediate family history of breast cancer or any similar illnesses. Clinical examination revealed gross breast asymmetry with a solid and firm mass occupying almost the whole right breast measuring about 10cm x 10cm. No ipsilateral axillary lymph node and the contralateral breast was unremarkable (Figure 1).

Ultrasonography of bilateral breast was performed and revealed a large right heterogenous and hypoechoic mass of 10cm x 9cm, vascularity seen within with no internal calcification. The left breast was otherwise normal with absence of enlarged or suspicious axillary nodes bilaterally. Histopathology assessment through core biopsy showed closely packed tubular ducts that were lined by benign 2-tiered epithelium with some intervening fibrovascular-stroma with no stromal overgrowth. Options of therapy were given to the patient and her family with regards to the surgical excision or intervention to achieve best cosmetic and functional outcome. In line with the safety for aerosolized generating procedure through intubation and ventilation during general anaesthesia (GA) during this COVID-19 pandemic era, the patient was subjected to nasopharyngeal swab 3-days prior to surgery.

Right infra-areolar elliptical incision was made to include previous biopsy site (Figure 2). The tumour was located beneath the subdermal layer with deep margin, occupying the lower inner quadrant and anterior to pectoralis major muscle. Tumour was well encapsulated and highly vascularized. Normal breast tissue seen superior to the tumour and well preserved throughout the surgery. Upon excision of the tumour, it weighed 474 grams with the resected size was 15cm x 12 cm (Figure 3).

Postoperatively, she recovered well and was discharged home the next day. The histopathological examination showed a well circumscribed benign fibroepithelial lesion made up of compressed ectatic ducts with intracanalicular growth pattern (Figure 4a) and small tubular ducts of peri-canalicular growth pattern (Figure 4b). The stroma in between ducts was cellular (Figure 4c). There were scattered ducts with associated usual epithelial hyperplasia. There was no granuloma or malignancy evident, hence it was consistent with juvenile fibroadenoma from the previous biopsy result. She was discharged well and subsequently seen in the clinic post-operatively at 6 months showing good cosmetic outcome and no evidence of recurrence (Figure 5).

DISCUSSION

Fibroadenoma is a benign tumour of the breast, commonly affecting young women in the child-bearing age. Fibroadenoma found in children and adolescents are termed juvenile fibroadenoma (5). A juvenile fibroadenoma is considered “giant” if it is greater than 5 cm, 500 grams or replaces at least 80% of the breast (5). It is rare and accounting for only 0.5% from the overall fibroadenoma incidence (4). The aetiology is not fully known to this date, and it was believed caused by increased oestrogen levels during adolescence period (6).

The preferred imaging modality in adolescents is breast ultrasonography, which better characterize and delineate breast masses, differentiate cystic from solid masses, and increase sensitivity while avoiding radiation exposure (7). A solid, suspicious lesion detected on ultrasonography requires a percutaneous biopsy preoperatively to guide in decision for surgical intervention (8). Mammography plays no significant role in the

evaluation of breast disease in paediatric population due to ionizing radiation exposure whereby ultrasonography of the breast is a legit option available and can achieve almost similar accuracy in radiological diagnosis in these modern days. Furthermore, actively menstruating women's breast tend to be dense and reduces the diagnostic yield from mammography alone which commonly requires complimentary ultrasound to complete the assessment (2). When a malignancy is suspected, magnetic resonance imaging may be useful to evaluate the extent of disease (8). Histologic diagnosis by core biopsy is indicated when the lesion shows rapid growth or has atypical features (9). In this case, her biopsy came back as benign lesion, hence no hormonal status was done and it corresponds with NCCN guideline that such test was not required.

Challenges in managing such case are mainly surgical approach, attaining good cosmetic outcome and for future breast feeding. One of the differential diagnoses is phyllodes tumour whereby cannot be discriminated diagnostically from cytology alone and requires a proper histopathology sample to definitively confirm the absence of malignant component. Therefore, definitive surgical excision is required. In our case, we are confident that we are dealing with fibroadenoma rather than phyllodes tumour based on the core biopsy result.

One of the challenges that we encounter is the planning for the surgical approach. Right infra-areolar incision was chosen to incorporate the previous biopsy site and proven to give symmetrical breast sizes. In contrary, Firdaus et al chose a superior circum-areolar incision with a good cosmetic outcome. It shows that both surgical approaches can provide good cosmetic outcome. The above surgical technique gives faster surgery duration with acceptable cosmetic outcome, especially during Covid pandemic, the limitation of aerosolised procedure, hence other more complex oncoplastic surgical techniques were not offered.

Another challenge is planning this elective surgery during the current Covid-19 pandemic. Strict protocols need to be followed to ensure safety to the patient as well as to the healthcare workers. (already mentioned in the case scenario).

Psychologically, a young person will endure massive anxiety as off going for surgery but will also face the anxiety of going to hospital where covid-19 is going rampant throughout the country now. As for this patient, we had a thorough explanation to her as well as her parents regarding the disease, the need for surgery as the tumour was enlarging and option of hormonal or conservative were not available and not suitable. The pre and post operative cosmetic outcome was compared to the patient and her parents to provide emotional and mentally relieve as the tumour was surgical excised safely with good cosmetic outcome and automatically will improve her self-esteem.

Data from the Surveillance, Epidemiology and End Result-Medicare-linked database and the National Cancer Database highlighted that overall survival decrease with every 30-day incremental delay in the surgery following diagnosis of breast (11). Although our case is known to be benign from biopsy, delaying the surgery is not ideal as it caused anxiety and psychological trauma to patient and family.

American Society of Breast Surgeons have come out with few recommendations in treating benign and suspicious breast lesions. Our patient falls into category Priority C; patients who have stable conditions for which action can be delayed for the duration of the COVID-19 pandemic, including routine screening with mammogram, MRI, or breast ultrasound; excision of benign nodules; duct excision; follow-up of discordant biopsies likely to be benign; treatment of high-risk lesions/atypia/papilloma; or prophylactic surgery (12).

During this pandemic, patients tend to delay the non-critical illnesses due to fear of contracting the deadly covid-19 virus. The pandemic also caused fear to the healthcare system trying to flatten the pandemic curve by implementing restriction of movements within the nation resulting in the postponement of appointments, clinical assessments, and surgeries (13). Our patient took about 8 months to get complete treatment from the moment of first presentation until the surgery. This is because patient requires multiple appointments to ease out the overcrowding issue in healthcare facilities hence overall delay in the treatment process. Despite the delays, she was successfully treated appropriately with a good outcome and regained her self-confidence.

CONCLUSION

Huge breast lump in adolescents can trigger unnecessary discomfort and anxiety to them and their family. Proper clinical and psychological management and careful surgical planning is paramount to alleviate this

added anxiety during the pandemic era and to deliver good outcome in terms of cosmesis and functionality. Surgery during COVID pandemic can be done safely by abiding to the strict standard operating procedure given while certain degree of delay in management is inevitable.

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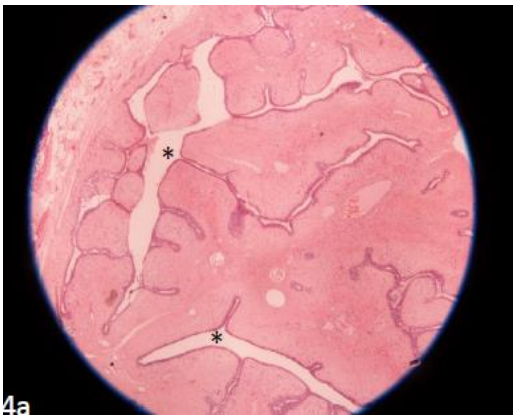
FIGURES

Figure 1: Pre-operative picture showed the gross breast asymmetry

Figure 2: Right infra areolar elliptical incision, incorporating previous biopsy site

Figure 3: The tumour weighed 474 grams with resected size of 15cm x 12 cm



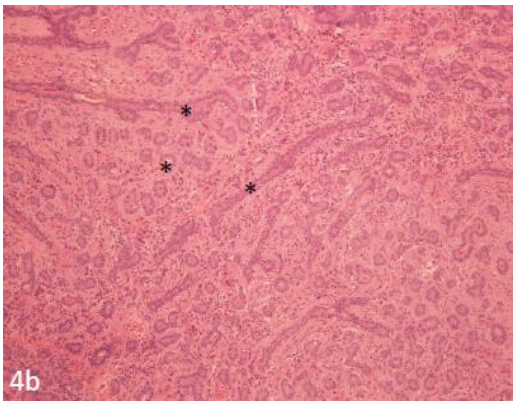


Figure 4a: Histopatholgy showing giant juvenile fibroadenoma with intracanalicular pattern; compressed ducts (a few examples of ducts indicated by *) forming slit-loke spaces (Haematoxylin & Eosin stain; magnification x 40)

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Figure 5: Good cosmetic outcome and symmetrical breast at 5 months post-operative