

SUBCUTANEOUS MASTECTOMY IN PERSISTENT PUBERTAL GYNECOMASTIA: A CASE REPORT

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Abstract : Subcutaneous Mastectomy In Persistent Pubertal Gynecomastia:

A Case Report. *Gynecomastia Is An Enlargement Of The Glandular Tissue Of The Breast In Men Due To Proliferation Of Ducts And Stroma, Usually Due To An Imbalance In The Estrogen/Androgen Ratio. It Can Be Caused By Physiological (Neonatal, Puberty, Aging), Medications, Endocrine Disorders, Systemic Diseases, And Hormone-Producing Tumors. A Structured Evaluation Is Essential To Rule Out Pathological Causes. A 19-Year-Old Male With Onset Of Gynecomastia At 15 Years Of Age (Initial Size Of A Corn Kernel, Then Progressed To The Size Of A Ping-Pong Ball). No Pain, Discharge, Or Trauma History. Patient Had An Older Sister With Leukemia. No History Of Medication, Steroid, Or Supplement Use. During Physical Examinations Were Found A Left Subareolar Mass, Firm, Painless, Without Axillary Adenopathy. Breast Ultrasound Observed Dense Glandular Pattern Without Suspicious Solid Mass. Subcutaneous Mastectomy Was Done, The Masses Appeared Solid, Grayish-White, And Rubbery. Fibrocollagenous Tissue And Fat With Several Epitheliosis Was Observed Under Microscope. Final Diagnosis Was Persistent Pubertal Gynecomastia (Idiopathic, Possibly Influenced By Hormonal/Genetic Factors). Adolescents With Persistent Gynecomastia Require A Multidisciplinary Approach: A Comprehensive History, Complete Physical Examination, And Imaging Studies, And Psychosocial Considerations. A Family History Of Blood Cancer Should Be Noted, But A Causal Relationship With Gynecomastia Is Indirect And Requires Further Evaluation If Systemic Findings Are Present.*

Keywords: *Gynecomastia, Adolescent, Mastectomy, Surgery, Case Report*

Abstrak : Mastektomi Subkutan pada Ginekomastia Persisten pada Masa

Pubertas: Laporan Kasus. Ginekomastia adalah pembesaran jaringan kelenjar payudara pada pria akibat proliferasi duktus dan stroma, biasanya akibat ketidakseimbangan rasio estrogen/androgen. Kondisi ini dapat disebabkan oleh faktor fisiologis (neonatal, pubertas, penuaan), pengobatan, gangguan endokrin, penyakit sistemik, dan tumor penghasil hormon. Evaluasi terstruktur sangat penting untuk menyingkirkan penyebab patologis. Seorang pria berusia 19 tahun dengan onset ginekomastia pada usia 15 tahun (ukuran awal sebesar biji jagung, kemudian berkembang menjadi sebesar bola pingpong). Tidak ada riwayat nyeri, keluar cairan, atau trauma. Pasien memiliki kakak perempuan dengan leukemia. Tidak ada riwayat penggunaan obat, steroid, atau suplemen. Selama pemeriksaan fisik, ditemukan massa subareolar kiri, padat, tidak nyeri, tanpa adenopati aksila. USG payudara menunjukkan pola kelenjar padat tanpa massa padat yang mencurigakan. Setelah dilakukan mastektomi subkutan, massa tampak padat, berwarna putih keabu-abuan, dan kenyal. Jaringan fibrokolagen dan lemak dengan beberapa epiteliosis diamati di bawah mikroskop. Diagnosis akhir adalah ginekomastia pubertas persisten (idiopatik, kemungkinan dipengaruhi oleh faktor hormonal/genetik). Remaja dengan ginekomastia persisten memerlukan pendekatan multidisiplin: riwayat lengkap,

pemeriksaan fisik lengkap, dan studi pencitraan, serta pertimbangan psikososial. Riwayat keluarga kanker darah perlu dicatat, tetapi hubungan kausal dengan ginekomastia bersifat tidak langsung dan memerlukan evaluasi lebih lanjut jika terdapat temuan sistemik.

Kata Kunci: Ginekomastia Remaja, Perawatan Bedah, Histopatologi

BACKGROUND

Gynecomastia is enlargement of the glandular tissue of the breast in men caused by ductal and stromal proliferation. The terminology and clinical observations of male breast enlargement have been recorded for centuries; early clinical and histopathological descriptions began to be documented in the medical literature in the 19th century and expanded with advances in endocrinology in the mid-20th century (Kanakakis et al. 2019b; Karti et al. 2022).

The reported prevalence and incidence of gynecomastia vary widely depending on the population, age, diagnostic method, and definition used. Systematic reports and population studies indicate a wide range in prevalence. In puberty, prevalence can reach tens of percents (reports cite pubertal prevalence as high as ~33–70% in some series). One large national/registry study confirmed that reported prevalence is highly heterogeneous (reported ranges of 4%–69% across populations) (Acharya 2021; Berger, Hornik-Lurie, and Talisman 2024; Elazizi et al. 2022).

Gynecomastia is a common condition that can have significant psychological impacts. Its primary pathogenesis is an imbalance between estrogen stimulation and the local/systemic effects of androgens on breast tissue. Hormonal fluctuations during puberty lead to a transient increase in the estrogen/androgen ratio. Most cases resolve spontaneously within 1–3 years, but a persistent gynecomastia requires intervention, especially when it is demanded by the patient. Evaluation for secondary causes (medication, testicular/adrenal/hepatic tumors, hypogonadism, genetic syndromes) is mandatory if the onset is atypical or persistent (Abdelaal, Ahmed, and Elsayed 2024; Shi & Xin, 2024).

Although pubertal gynecomastia is common and resolves spontaneously in most adolescents within 1–3 years, persistent unilateral pubertal gynecomastia requiring surgical excision remains relatively uncommon. According to the European Academy of Andrology (EAA) Clinical Practice Guideline, persistent gynecomastia after completion of puberty should be thoroughly evaluated to exclude secondary causes, and surgical management is recommended for patients with persistent breast enlargement associated with significant psychosocial distress or cosmetic concerns after appropriate assessment (Kanakakis et al. 2019). This report highlights diagnostic evaluation, surgical management, histopathological findings, and favourable postoperative outcome in patient with persistent unilateral pubertal gynecomastia, thereby providing practical clinical evidence for the management of this uncommon condition.

CASE REPORT

A 19-year-old man presented with a lump in his left breast that had been present since the age of 15. Initially, the lump was the size of a corn kernel and gradually grew to the size of a ping-pong ball. There was no pain, itching, or nipple discharge. The patient had no history of medication, hormone therapy, steroids, or supplements. There was no history of chest trauma. The patient's height was 170 cm, weight was 65 kg, and BMI was 22.5 kg/m². Pubertal development was complete (Tanner Stage V). Hormonal evaluation was not performed due to no clinical features suggestive of endocrine abnormalities. The patient's older sister had a history of blood cancer (leukemia). The patient's mother had a history of untreated breast lumps.



Figure 1. Clinical photo. Both nipples appear asymmetrical, with enlargement of the left breast.

Physical examination revealed a left subareolar mass measuring approximately 4 cm, round, firm, painless, and without enlarged axillary nodes. The right breast was normal. A

complete blood count was within normal limits. Breast ultrasound revealed homogeneous *retro-nipple fibroglandular tissue* without any solid masses or suspicious cysts.

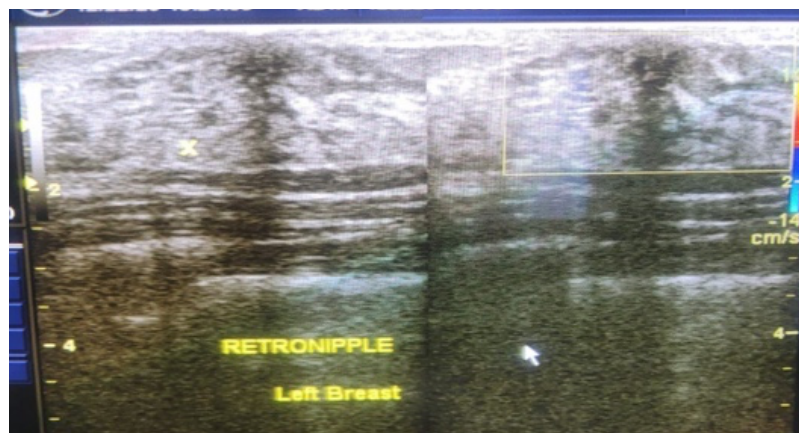


Figure 2. Breast Ultrasound Examination

The patient underwent *subcutaneous mastectomy* through periareolar approach. Macroscopically, the tumor was completely excised, and histopathological examination was performed. The tumor was divided into three sections, each measuring 2x1x0.5 cm; 2x2x0.5 cm; and 2.5x2x1 cm. The sections appeared solid, grayish-white, and had a rubbery consistency. Microscopically, extensive

fibrocollagenous tissue and fat were found at the edges. The tissue contained several *terminal ductal lobular units* (TDLUs) that showed epitheliosis, lined with epithelium and myoepithelium without signs of atypia. No malignancy was found. It was concluded that the excised tumor histopathologically matched the clinical picture of gynecomastia.

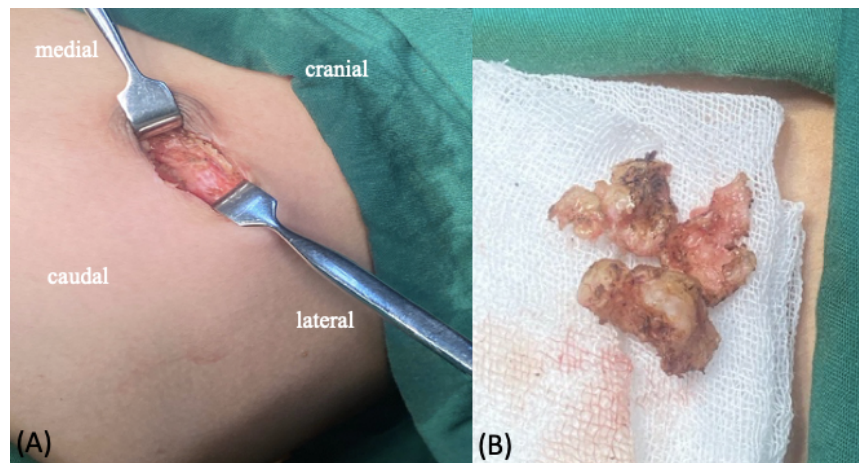


Figure 3. (A) Photo during surgery. The impression is that the tumor was completely excised. (B) The tumor is divided into three sections.

After surgical procedure, compression garment was worn by the patient for 10 days. The patient recovered well and showed no sign of complications. The final diagnosis was persistent pubertal gynecomastia (idiopathic with suspected genetic predisposition). The patient was advised to do observation and lifestyle modification to overcome reoccurring mass in the future. Follow up was suggested if there are any reoccurrence or other symptom developed.

DISCUSSION

Pubertal gynecomastia is a physiological condition caused by a temporary increase in the estrogen-to-androgen ratio during puberty. Most cases are transient and regress spontaneously within 1-3 years (Bromley et al. 2021; Gu et al. 2025). In this patient, the enlargement persist for 4 years, leading to more complex problems. According to the EAA Clinical Practice Guidelines and the Endocrine Society recommendations, pubertal gynecomastia generally requires observation because most cases regress spontaneously within 1-3 years. Surgical intervention is recommended only in patients with persistent gynecomastia after completion of puberty, after exclusion of secondary causes, and when

significant physical discomfort, psychological distress, or cosmetic concerns are present despite conservative management (Kanakakis et al. 2019).

In our patient, breast enlargement had persisted for approximately 4 years, well beyond the expected period of spontaneous regression. Clinical evaluation excluded secondary pathological causes, while the patient experienced persistent cosmetic concerns and psychological discomfort. Therefore, this patient fulfilled the current guideline recommendations for operative management.

Our findings are consistent with previous case reports describing persistent pubertal gynecomastia requiring surgical intervention. Recent reports have demonstrated excellent aesthetic outcomes following surgical management in adolescent and young adult patients. Although patient characteristics varied regarding age and unilateral or bilateral involvement, surgery consistently resulted in high patient satisfaction, improved body image, and low complication rates. Similar to those reports, our patient had long-standing gynecomastia that failed to resolve spontaneously and achieved favorable postoperative cosmetic results without recurrence during follow up.

Table 1. Summary of Studies on Surgical Treatment of Persistent Pubertal Gynecomastia

No	Article	Patients' Age	Uni/Bilateral	Intervention	Results
1	Shang et al. 2024	14 y.o	Unilateral	Endoscopic mastectomy	Cosmetic satisfaction achieved, without significant complication
2	Pinelli et al. 2023	13-18 y.o	Majority bilateral	Subcutaneous mastectomy ± liposuction	High satisfaction, low complication
3	Anderko IB, et al (2026)	10-17 y.o	77% bilateral	Glandules excision ± liposuction	Benign histopathology, high satisfaction
4	Angrella N, et al (2025)	19 y.o	Unilateral	Excision	Benign histopathology, good outcome

Pathological etiologies such as testicular tumors, adrenal disorders, or certain medication use should be suspected. Genetic factors also play a role. Mutations or polymorphisms in the CYP19A1 gene cause increased aromatase activity, which converts testosterone to estradiol, increasing local estrogenic effects. Variations in estrogen and androgen receptors can contribute to differences in breast tissue sensitivity between individuals (Czajka-Oraniec et al. 2008; Patjamontri et al. 2025). Although the patient reported a family history of leukemia and breast lumps, no causal association has been established between these conditions and pubertal gynecomastia. Therefore, the family history should be interpreted cautiously and cannot be considered evidence of a genetic predisposition in this case.

Diagnosis is made through clinical, and imaging examinations. Breast ultrasound is the initial modality that can assess glandular tissue patterns without radiation (Gu et al. 2025). If a hard, asymmetrical mass is found, or if it contains bloody discharge, a biopsy is necessary to rule out male breast carcinoma, although this is very rare (less than 1% of all breast cancers)

In this patient surgical therapy was done. Surgical therapy is indicated if gynecomastia persists for more than 12-24 months, in this case the gynecomastia persists for 4 years. Surgical management is considered when the condition causes significant physical discomfort, psychological or social distress, or noticeable aesthetic deformity (Baumann 2018; Kanakis et al. 2019). Gynecomastia causes psychological problem where the patient seeking for help because feeling unconfident about the enlargement of the breast. The primary objective of operative treatment is the excision of excessive fibrotic glandular tissue and the restoration of a normal male chest contour. Available surgical approaches include direct excision of breast tissue, liposuction, or a combination of both methods(Baumann 2018).

Prior to surgical therapy, observational therapy is considered if there are no significant complaints.(Calderon 2024) The compression garment is worn for several days after surgical procedure to prevent complications, such as seroma or hematoma.

This case highlights that persistent pubertal gynecomastia should

not be regarded as a simple physiological condition once spontaneous regression has failed after completion of puberty. Careful exclusion of secondary causes and adherence to current clinical guidelines are essential before surgery. When appropriately indicated, surgical treatment provides excellent cosmetic outcomes and substantially improves patients' quality of life.

CONCLUSION

Pubertal gynecomastia can persist and cause cosmetic and psychosocial concerns. This case, with onset at 15 years and still present at 19 years of age, requires a thorough evaluation. A family history of blood cancer and breast lump should be noted but does not necessarily indicate a direct association. Follow-up is necessary if other signs develop. Treatment options include observation, targeted medical therapy, and/or surgery based on duration, etiology, and impact on the patient's quality of life. Surgical intervention was done in persistent gynecomastia and if its causes psychosocial impairment.

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