

# Round block (Benelli mastopexy) technique in the surgical treatment of gynecomastia

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## ABSTRACT

Gynecomastia is a benign condition characterized by an abnormal increase in the quantity of glandular tissue in one or both breasts. It manifests itself as a result of hormonal imbalances throughout puberty and later in life. Although gynecomastia is not a serious condition in most cases, individuals may experience embarrassment as a result of their circumstances. Depending on the underlying cause, some patients may heal spontaneously, while others may require medication or surgery. The intention of the case is to emphasize the mastopexy method as a mastectomy technique on a young adult patient who was diagnosed with idiopathic gynecomastia and had long-standing compliance. The technique is frequently performed in the oncoplastic surgical treatment of breast cancer. In our case, the cosmetic appearance was at an expected level, and the feared consequence of nipple-areola complex necrosis did not occur. In the treatment of gynecomastia, it is difficult to make a decision that will be beneficial for the patient, which requires a long-term examination process. Once the surgery is required as a treatment method, consideration should be given to the potential of recurrence following surgical treatment, as well as the scar formation of the chosen incision.

**Keywords:** Gynecomastia, liposuction, male breast enlargement, mastectomy.



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## INTRODUCTION

Gynecomastia is the benign proliferation of male breast tissue caused by an increase in the estrogen/androgen activity ratio. It manifests itself physiologically (adolescence, puberty, and old age) as well as pathologically (androgen insufficiency caused by drugs or disease, testicular tumors, hyperthyroidism, and chronic renal failure). Of the adult patients evaluated in the outpatient clinic, 25% are idiopathic gynecomastia, while 40% are persistent pubertal gynecomastia or caused by drugs.<sup>[1]</sup> Gynecomastia must be distinguished from pseudogynecomastia (lipomastia) and breast cancer. Pseudogynecomastia is a condition in which the breast parenchymal tissue is absent.

Gynecomastia treatment is determined by the etiology of the condition, its duration and severity, and the presence of the breast discomfort. If gynecomastia is diagnosed less than 6 months after the onset of the condition, if the condition is drug related, or if the diagnosis is pubertal gynecomastia, it is recommended to wait without intervention following drug withdrawal because a majority of the cases naturally regress during this time period.<sup>[2]</sup> Medical intervention is advised for young men with breasts larger than 4 cm, pain-tenderness feeling in the breast, and an appearance that causes embarrassment during daily activities. Pharmacological treatment is unlikely to be effective in case of severe gynecomastia with large sagging breasts and excess skin. However, surgical treatment should be postponed until the cause is determined.<sup>[3]</sup>

The medical workup revealed idiopathic gynecomastia in a young adult male patient who had been evaluated in our outpatient clinic for a long time with complaints of enlargement and tenderness in both breasts. Our objective, in this case, is to demonstrate the successful removal of breast tissue while avoiding surgical scarring, as well as the clinical and cosmetic outcomes of mastectomy performed using the round block (Benelli mastopexy) technique.

## CASE REPORT

Written and verbal consent was obtained for the case report.

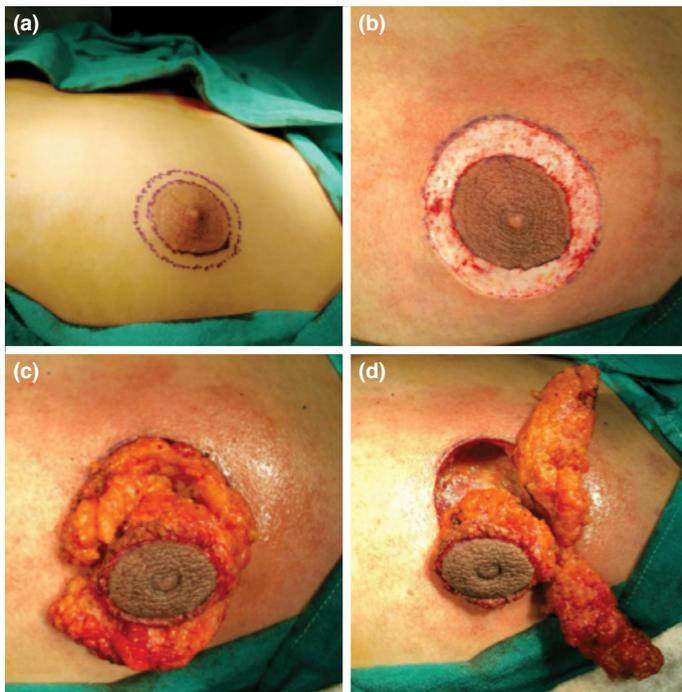
An 18-year-old male patient was evaluated with the complaint of both breasts larger than normal for about a year (Fig. 1). He stated that he was not taking any medicine at the time. His endocrinological and genetic screenings have been completed. No numerical or structural chromosomal abnormalities were detected in

the karyotype analysis. It was reported as karyotype 46, XY. The abdominal ultrasonography (US) examination revealed no pathological findings of the adrenal glands and no intraabdominal mass lesion. The testicular parenchyma and the size were reported to be normal in the scrotal US. Immature fibroglandular tissue with a diameter of 14.4×42.2×51.2 mm in the retroareolar area of the right breast and a diameter of 16.6×52.9×54 mm in the retroareolar area of the left breast was compatible with gynecomastia in the breast US. Biochemical (urea and creatinine) and hormonal (thyroid, adrenal, gonadal, and pituitary) tests revealed no pathological findings. In addition, cranial magnetic resonance imaging showed no pituitary abnormality. The patient was eventually diagnosed with idiopathic gynecomastia and recommended surgery by endocrinology. Treatment options were discussed with the patient and his family. The decision was made to perform a nipple areola complex (NAC) sparing mastectomy, which would leave no scar tissue on the anterior chest wall. Due to the patient's request and the unavailability of liposuction as an alternative method, a mastectomy with the round block (Benelli mastopexy) technique was scheduled.

The NAC margins on both sides are marked as circular. Around the initial circle, a second circle (external) was drawn 1 cm broader than the boundary. The skin was resected, with deepithelialization between the two circles. A transdermal incision was made through the border of the external circle. The breast tissue around the pedicle was lifted over the pectoral fascia and excised by preserving the NAC and the underlying breast pedicle (Fig. 2). The base of the mammary pedicle under the NAC was infixed at the farthest end of the mastectomy area by using 3/0 absorbable multifilament suture material. Hence, the space formed after mastectomy was filled with a breast pedicle located posterior to the NAC. The closure of the circular deepithelialized area around the NAC with a diameter of 1 cm accomplished by using 4/0 absorbable monofilament suture material and the surgery was completed (Fig. 3). A quantity of 76 g of right breast tissue and 79 g of left breast tissue was excised in all. The presence of fibroglandular breast tissue was confirmed by pathological examination. On the third postoperative day, the breast dressings were opened, and no feared complication of NAC ischemia was observed (Fig. 4). The technique was successful. The patient was informed that a small amount of breast tissue remained in the NAC pedicle and there is a possibility of a recurrence in time.



**Figure 1:** Preoperative images of a patient diagnosed with gynecomastia.



**Figure 2:** Round mastopexy technique in gynecomastia. **(a)** The nipple-areola complex margins on both sides are marked as circular. Around the initial circle, a second circle (external) was drawn 1 cm broader than the boundary. **(b)** Skin resection with deepithelialization between two circles. **(c)** The breast tissue around the pedicle was lifted over the pectoral fascia and excised by preserving the nipple-areola complex and the underlying breast pedicle. **(d)** The image of the excised breast tissue.

## DISCUSSION

The treatment of gynecomastia should begin with the simplest and least invasive procedures possible, such as observation, withdrawal of any offending medications, and treatment of underlying medical conditions. If these measures are ineffective after 3 months, medical treatment is indicated. Surgical intervention should be considered in men with prolonged (>12 months) gynecomastia that has progressed to the fibrotic stage and is causing substantial discomfort and psychological distress.<sup>[4]</sup> The presence of the current complaints for approximately 1 year determined the surgical treatment in our case. The patient had tenderness in both breasts and was disturbed by his appearance. The decision was supported by the absence of drug use and morbidity, as well as no pathological findings in genetic, radiological, and endocrinological tests.



**Figure 3:** The closure of the deepithelialized area around the areola with a diameter of 1 cm accomplished by using 4/0 absorbable monofilament suture material, following mastectomy.

Histological studies demonstrate that glandular changes in the breast tissue are consistent regardless of the etiology, and the extent of glandular proliferation depends on the intensity and the duration of stimulation. Gynecomastia complaints are more prominent during the early stages (first 6 months) when ductal hyperplasia and periductal inflammation are present. Additionally, this is the time when the optimum response to medical treatment can be achieved. Medical treatment options, such as tamoxifen and radiation therapy, are widely accepted. Tamoxifen, a selective estrogen receptor modulator, can be recommended for a short period of 3 months in young adults diagnosed with gynecomastia of 6 months or less. These treatments may result in partial regression and a reduction in sensitivity.<sup>[5]</sup> Aromatase inhibitors block estrogen biosynthesis and, theoretically, are therefore effective for gynecomastia by reducing the estrogen/androgen ratio.<sup>[6]</sup> However, current data from clinical trials do not demonstrate a clear, major clinical benefit of these drugs for gynecomastia, neither in adolescents nor in men



**Figure 4:** Images of the nipple-areola complex on the third postoperative day.

with prostate cancer. Therefore, the use of aromatase inhibitors is not suggested. Medical treatment was not an option in our case due to the duration of the complaints and the inability to determine the underlying cause. Prophylactic radiotherapy prevents some men, but not all, from anti-androgen-induced gynecomastia.<sup>[7]</sup> Although the treatment of existing gynecomastia with higher doses of radiation can reduce pain and tenderness, it is found to be ineffective at diminishing tissue volume.<sup>[8]</sup> In this regard, radiotherapy was not a part of the treatment plan for our case.

Surgical treatment should be applied in men with gynecomastia who have advanced to the fibrotic stage.<sup>[9]</sup> The scope of the surgery is determined by the extent of the breast enlargement and the amount of adipose tissue. Men with moderate (6–11 cm in diameter) and severe (>11 cm in diameter) are unlikely to experience spontaneous breast regression. Many patients are treated with a combination of direct surgical incision of glandular tissue and liposuction of coexisting adipose tissue through a periareolar incision. Comprehensive cosmetic surgery, including skin excision, is indicated for patients who developed substantial sagging of the breast tissue.<sup>[10,11]</sup> Histopathological findings from surgical breast specimens almost always indicate gynecomastia; breast cancer is found to be extremely rare. In a study of 3719 surgical procedures (5113 breast samples) performed for gynecomastia, the most common pathological diagnosis was gynecomastia (94.1%), followed by pseudogynecomastia (5.3%). The overall prevalence of invasive breast carcinoma, ductal carcinoma in situ, and atypical ductal hyperplasia was 0.11%, 0.18%, and 0.4%, respectively.<sup>[12]</sup>

In our case, the oncoplastic mastopexy method was chosen to treat moderate gynecomastia which would preserve the cosmetic appearance.

Round block (Benelli mastopexy) procedure is a useful technique as it enables the removal of mass lesions located 5 cm from the areola while maintaining the cosmetic appearance. The main indication is to relieve symptoms associated with breast heaviness in young patients with mild to moderate ptosis and hypertrophy. The primary limitation is the narrowness of the surgical field and the difficulty of dissection. Careful dissection is required to minimize the risk of skin necrosis and reduce the possibility of NAC ischemia. It is not recommended to be applied in patients with excessive ptosis.<sup>[13]</sup> Complications include loss of the nipple, late-term opening of the scar, changes in the shape of the areola, fibrosis, and asymmetry in the breast, and undesirable cosmetic appearance.<sup>[14,15]</sup> As surgical experience increases, the rate of complications will eventually decrease.

## CONCLUSION

The investigations required during the planning and diagnosis of gynecomastia treatment are critical. Appropriate diagnosis has a direct impact on the outcome of treatment. In surgical candidates, effective mastectomy should be performed considering the cosmetic outcome. In this regard, the round block (Benelli mastopexy) procedure is effective and safe to perform.

## Statement

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