



**BREAST PATHOLOGIES IN EUTHYROID WOMEN WITH THYROID DISORDERS:
CLINICAL AND ULTRASONOGRAPHIC CORRELATIONS**



Mahmudjonova Sayyoraxon Shavkatbek qizi

Andijon Davlat Tibbiyot Instituti Onkologiya kafedrasi assistenti

Gmail: sayyoramaxmudjonova1@gmail.com

Tel: +998880108073

ORCID ID: <https://orcid.org/0009-0006-6442-4461>

Abstract: It was established that breast pathology is frequently detected in women with thyroid disorders despite preserved euthyroid status. The results of examination of 69 women from the Andijan region during 2023–2025 were considered. The frequency of pathological breast changes depending on the type of thyroid pathology was evaluated. It was found that neoplastic breast changes were detected in 58.34% of women with autoimmune thyroiditis and in 66.07% of women with endemic goiter. A predominance of pathological changes in the upper-outer quadrant of the breast was established. The characteristics of predominantly bilateral breast involvement were characterized. Adenosis, fibroadenoma, cysts, intraductal papilloma, mastopathy, and breast cancer were identified. The relationship between breast pain, particularly premenstrual pain, and pathological breast changes was evaluated. The need for regular breast monitoring and early diagnosis in women with thyroid disorders was substantiated.

Keywords: euthyroid, thyroid disorders, breast neoplasms, mastopathy, early diagnosis

Introduction

Thyroid gland disorders represent an important clinical problem among women because of their potential effects on endocrine regulation, reproductive function, and the health of hormone-dependent organs. The mammary glands are particularly sensitive to changes in the endocrine environment, and disturbances in thyroid structure and function may be accompanied by various morphological and functional alterations in breast tissue. Importantly, pathological changes in the thyroid gland may be present even when circulating thyroid hormone concentrations remain within the euthyroid range.

The relationship between thyroid pathology and diseases of the mammary glands has attracted increasing clinical interest. The mammary gland is regulated by a complex interaction of thyroid hormones, ovarian hormones, prolactin, and other endocrine mediators. Therefore, structural thyroid abnormalities may coexist with benign proliferative and dysplastic changes of the breast. Such changes may include mastopathy, adenosis, cystic lesions, fibroadenoma, intraductal papilloma, and, in some cases, malignant neoplasms.

Early identification of breast pathology is clinically important because many benign lesions may remain asymptomatic for a considerable period of time. At the same time, patients may present with breast discomfort, tenderness, palpable areas of increased tissue density, or cyclical pain.



URGANCH DAVLAT TIBBIYOT INSTITUTI JANUBIY OROLBO'YI TIBBIYOT JURNALI

2 - TOM, MAXSUS SON-3. 2026

14.00.00 - TIBBIYOT FANLARI ISSN: 3093-8740

Premenstrual breast pain is particularly relevant because it may reflect the influence of hormonal fluctuations on already altered mammary tissue. Consequently, systematic examination of the mammary glands may facilitate the detection of pathological changes before the development of more pronounced clinical manifestations.

The problem is of particular relevance in Uzbekistan, where thyroid disorders, including endemic goiter and autoimmune thyroiditis (AIT), remain significant health concerns. Endemic thyroid pathology may be associated with persistent structural changes in the gland, while autoimmune processes may result in chronic alterations of thyroid tissue. Even when these conditions occur with preserved thyroid hormone production, their possible association with breast pathology requires further clinical evaluation.

From a preventive perspective, the simultaneous assessment of the thyroid gland and mammary glands may improve the identification of women requiring closer observation. Clinical examination, ultrasonography, hormonal assessment, and cytological or histological verification when indicated can provide complementary information about the condition of both organs.

The present study was therefore undertaken to characterize the frequency and distribution of breast pathological changes among euthyroid women with different forms of thyroid pathology. Particular attention was given to the morphological type of thyroid disease, localization of breast lesions, clinical manifestations, and the spectrum of detected mammary gland disorders.

Materials and Methods

The study was conducted between 2023 and 2025 and included 69 euthyroid women residing in the Andijan region. The participants were evaluated for the presence of thyroid pathology and associated changes in the mammary glands. Euthyroid status was determined on the basis of laboratory assessment of thyroid function.

For comparative clinical assessment, the women were divided into two groups according to the condition of the mammary glands:

- Group I (main group) — women in whom pathological changes of the mammary glands were diagnosed;
- Group II (control group) — women without clinically significant pathological changes of the mammary glands.

All participants underwent a comprehensive clinical examination. Particular attention was paid to complaints of breast pain, the relationship of symptoms to the menstrual cycle, palpable areas of increased tissue density, and other clinical manifestations suggestive of mammary gland pathology.

Ultrasound examination of both the thyroid gland and mammary glands was performed. Thyroid ultrasonography was used to characterize the structural type of thyroid pathology, including diffuse, nodular, and diffuse-nodular changes. Ultrasound assessment of the mammary glands was used to identify focal and diffuse pathological alterations and to determine their localization.

Laboratory evaluation included assessment of thyroid-stimulating hormone (TSH), triiodothyronine (T_3), and thyroxine (T_4). These parameters were used to confirm the euthyroid functional state and to assess thyroid hormonal status in relation to the observed mammary gland changes.

Cytological or histological examination was performed when clinically or instrumentally indicated. These additional diagnostic procedures were used to clarify the nature of suspicious or structurally altered lesions and to differentiate benign and malignant processes.

The obtained clinical, laboratory, ultrasound, cytological, and histological findings were analyzed to determine the frequency and characteristics of mammary gland pathology in women with different forms of thyroid disease. Particular attention was paid to the distribution of pathological changes between the right and left breasts and to their localization within individual breast quadrants.



URGANCH DAVLAT TIBBIYOT INSTITUTI JANUBIY OROLBO'YI TIBBIYOT JURNALI

2 - TOM, MAXSUS SON-3. 2026

14.00.00 - TIBBIYOT FANLARI ISSN: 3093-8740

Results

The analysis demonstrated that pathological changes of the mammary glands were frequently detected among euthyroid women with structural thyroid disorders. Despite the preservation of normal thyroid hormonal function, a considerable proportion of women demonstrated various breast neoplastic and dysplastic changes. These findings indicate that euthyroid biochemical status does not necessarily exclude the coexistence of structural thyroid pathology and clinically relevant abnormalities of the mammary glands.

Among 12 women with autoimmune thyroiditis (AIT), breast neoplasms were identified in 7 patients, corresponding to 58.34%. Thus, more than half of the women in this subgroup demonstrated concomitant pathological changes in the mammary glands.

A comparatively high frequency was also observed among women with endemic goiter. Of the 56 patients with endemic goiter, 37 (66.07%) were found to have breast neoplasms. This finding demonstrates that breast pathology was frequently encountered in women with structural thyroid abnormalities associated with endemic goiter.

Among the 4 women who had undergone thyroid resection, breast neoplasms were identified in 1 patient (25%). The lower proportion in this subgroup should be interpreted with caution because the number of observations was limited. Nevertheless, the finding demonstrates that mammary gland pathology may also occur in women with a history of thyroid surgery.

Further analysis according to the morphological type of thyroid pathology revealed differences in the frequency of breast neoplastic changes. In women with diffuse goiter, breast neoplasms were identified in 32 of 46 patients (69.56%). This represented the highest proportion among the analyzed forms of goiter.

In the subgroup with nodular goiter, breast neoplastic changes were detected in 3 of 4 patients (66.67%). Although the proportion was high, interpretation of this percentage requires consideration of the small number of patients in this subgroup.

Among women with diffuse-nodular goiter, 10 of 19 patients (52.63%) demonstrated breast neoplastic changes. Thus, more than half of the women with this morphological type of thyroid pathology also had concomitant breast changes.

Taken together, these findings demonstrate that breast pathology was frequently observed across the major structural forms of thyroid disease in euthyroid women. The frequency was particularly pronounced among women with diffuse goiter.

The localization of neoplastic changes in the mammary glands of women in the main group was studied (Table 1)

Table 1. Localization of Neoplastic Changes in Euthyroid Women

Breast Quadrant	Left Breast		Right Breast	
	N	%	n	%
1.Upper-Outer (UO)	29	72,5	27	69,23
2.Upper-Inner (UI)	9	22,5	12	30,77
3. Lower-Outer (LO)	19	47,5	19	48,72
4.Lower-Inner (LI)	20	50,0	15	38,46
5. Central Zone (CZ, sub- and para-areolar)	21	52,5	17	43,58
Total	40	100%	39	100%



URGANCH DAVLAT TIBBIYOT INSTITUTI JANUBIY OROLBO'YI TIBBIYOT JURNALI

2 - TOM, MAXSUS SON-3. 2026

14.00.00 - TIBBIYOT FANLARI ISSN: 3093-8740

The analysis of lesion localization showed that the upper-outer quadrant was the most frequently affected region in both breasts. In the left breast, pathological changes in the upper-outer quadrant were recorded in 29 women (72.5%), whereas 27 women (69.23%) demonstrated corresponding changes in the right breast.

The central zone was the second most frequently represented localization, being observed in 21 women (52.5%) in the left breast and 17 women (43.58%) in the right breast. Changes in the lower-inner quadrant were identified in 20 women (50.0%) on the left and 15 women (38.46%) on the right.

The lower-outer quadrant demonstrated a relatively similar frequency on both sides, with 19 cases (47.5%) in the left breast and 19 cases (48.72%) in the right breast. Upper-inner quadrant involvement was less frequent, occurring in 9 women (22.5%) on the left and 12 women (30.77%) on the right.

Overall, the distribution pattern demonstrated that pathological changes were not restricted to one breast. The relatively similar frequencies between the right and left sides indicate a predominantly bilateral distribution of mammary gland abnormalities in the examined population.

Table 2. Frequency of Breast Neoplasms in Euthyroid Women

Breast Disease	Number of Patients	%
Adenosis	9	20,0
Fibroadenoma	10	22,3
Cysts	9	20,0
Intraductal papilloma	4	8,8
Mastopathy	11	24,4
Breast Cancer	2	4,5
Total	45	100

The analysis of the spectrum of breast disorders demonstrated that mastopathy represented the most frequently recorded pathology, being diagnosed in 11 patients (24.4%). Fibroadenoma was identified in 10 patients (22.3%), while adenosis and cystic changes were each observed in 9 patients (20.0%).

Intraductal papilloma was detected in 4 patients (8.8%). Breast cancer was identified in 2 patients, corresponding to 4.5% of the analyzed cases.

The predominance of benign and dysplastic breast changes indicates that most pathological findings were non-malignant in nature. Nevertheless, the identification of malignant lesions, even at a relatively low frequency, emphasizes the importance of systematic breast examination and appropriate diagnostic verification in women with concomitant thyroid pathology.

Mastopathy was among the most frequently detected breast pathologies, occurring in 11 patients (24.4%). Diffuse mastopathy was observed in 2 patients (18.18%), while nodular mastopathy was identified in 9 patients (9.09%). Most cases were of moderate severity. Breast pain was reported predominantly during the premenstrual period (64.1%), whereas 35.9% of patients experienced constant pain. Cytological examination revealed colostrual cells and adipose tissue in 50% of cases each, while amorphous masses and fibroblasts were detected in 25% of cases. On palpation, areas of



URGANCH DAVLAT TIBBIYOT INSTITUTI JANUBIY OROLBO'YI TIBBIYOT JURNALI

2 - TOM, MAXSUS SON-3. 2026

14.00.00 - TIBBIYOT FANLARI ISSN: 3093-8740

increased fibrous density with poorly defined margins were identified, whereas the remaining glandular tissue maintained a soft-elastic consistency.

Conclusion

Breast pathological changes were frequently observed in euthyroid women with thyroid disorders, particularly among those with endemic and diffuse goiter. Most lesions were benign or dysplastic, with mastopathy, fibroadenoma, adenosis, and cysts predominating. Breast changes were frequently bilateral, with the upper-outer quadrant being the most commonly affected region.

The findings support the importance of regular clinical and ultrasound assessment of the mammary glands in women with structural thyroid disorders, even when thyroid hormone levels remain within the euthyroid range. Early detection and appropriate diagnostic evaluation may contribute to timely management of breast pathology.

References

1. Kovalenko, A. V., & Petrova, E. N. (2021). Thyroid dysfunction and breast tissue pathology: Diagnostic correlation by ultrasound and hormonal profile. *Journal of Endocrine Imaging*, 14(3), 112–118.
2. Srikantia, N., & Basu, S. (2020). Correlation between thyroid disorders and benign breast diseases: A clinical and ultrasonographic study. *International Journal of Radiology and Imaging*, 33(2), 45–52.
3. Şimşek, E., & Yılmaz, H. (2019). Ultrasound evaluation of breast changes in patients with thyroid dysfunction. *European Journal of Endocrinology*, 181(4), 527–533.
4. American Thyroid Association. (2023). Guidelines for the management of thyroid disease in women. Washington, D.C.: ATA Publications.
5. Yusupova, D. M., & Rahimov, O. B. (2022). The role of ultrasound diagnostics in breast diseases associated with thyroid dysfunction. *Uzbekistan Medical Journal*, 5(2), 87–91.
6. Joraeva, N. K., & To'xtayeva, M. A. (2020). Diagnostic and preventive aspects of endocrine disorders in women's health. Tashkent: Tibbiyot Publishing.
7. World Health Organization (WHO). (2022). Global report on endocrine-related women's health disorders. Geneva: WHO Press.
8. Mahmudova, Z. R. (2021). Diagnostic significance of hormonal imbalance in breast diseases. *Scientific Bulletin of Andijan Medical Institute*, 4(1), 63–68.
9. Radiological Society of North America (RSNA). (2020). Breast imaging and hormonal disorders: Clinical review. *Radiology Review Series*, 8(3), 142–151.