

# *Dynamics of Thyroid Gland Dysfunction*

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### **Abstract**

*Following the cessation in our country of the incidence and prevalence of endemic goiter because of the widespread use of the iodized salt by the albanian people, in the foreground it is now resulting in the more frequent occurrence the impaired thyroid function due to the autoimmune Hashimoto's thyroiditis*

***Aim of the study:** To compare the prevalence of endemic goiter in the population of Gjirokastra County following the use of iodized salt and current diseases of the*

*thyroid gland with impairments of its function such as autoimmune thyroiditis, and to promote early diagnostic and therapeutic activities towards it such as ultrasound screening of the thyroid or cases with pseudo nodes stria, TSH and ATPO examinations, in particular cases anti-Tg and IgG + IgM EBV, nutritional therapies and medications to stop progression to hypothyroidism.*

**Key words:** *Goiter, endemic Goiter, Thyroid, TSH, ATPO*

## **Methodology**

This study was based on cases presented at the polyclinic in one of the endocrinology cabinets in Gjirokastra with complaints of thyroid pathology. After clinical examination and ultrasound, laboratory examination was required for suspected cases: TSH, ATPO; unclear cases and anti-TG, and IgG + IgM EBV.

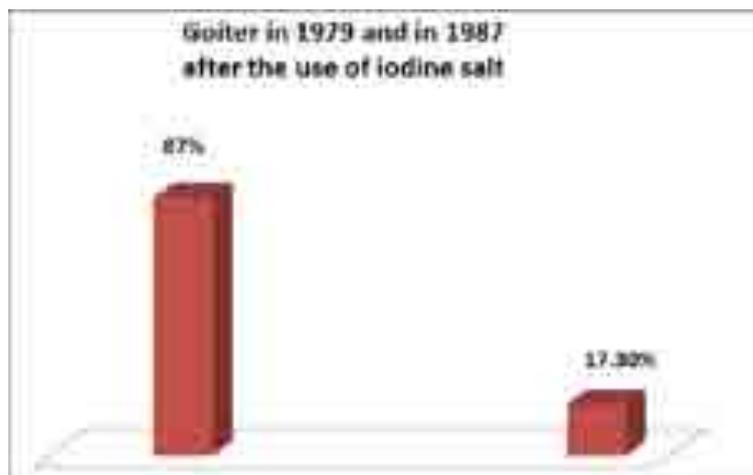
## **Content**

The goiter or struma is an increase in the volume of the thyroid gland that is followed by the disorder of its function. The disease is common but in developed and high standards countries, thanks to the use of iodized salt, it is not problematic anymore. Morbidity depends on the amount of iodine in the soil, where iodine is adequate, livestock products such as milk, meat, etc. will have the necessary amount of iodine, as opposed to foods obtained from poor soil iodine, where struma will be more frequent. The soil is enriched with iodine from the rains coming from the sea, consequently, old soils will have more iodine in the geological sense than new soils.

## **Historical aspect**

We first undertook a study of endemic goiter propagation by Prof. Fejzi Hoxha who presented this data in 1976 in his book called "Endemic Goiter". In 1977-1979, In the district of Gjirokastra, endemic goiter screening was undertaken by the health center (started in 1977 and ended in 1979). A study was carried out that continued until 1997 on the epidemiology of goiter and its prophylaxis with iodized salt (Vlora iodized salt). This study was conducted by Dr. Hodo Celo, controlled by professors of the Faculty of Medicine - Prof. Fejzi Hoxha, Prof. Isuf Kalo and Prof. Hektor Peci. 88.1% were found in the Lunxhëri area from Odria to Libohovo at 6-15-year-olds, while in the areas opposite to Gjirokastra such

as Lazarat-Dropull there is an average of 22%, and in Picar area was around 5%. Since 1979, the iodine salt of Vlora has been traded in the area of Lunxhëri and for 8 years the frequency of goiter in Lunxheria has decreased to 17.3% in 1987. From the use of iodized salt, there has been a drastic decrease in the incidence of goiter. Even the study in animals (in kids) in Erind (Lunxhëri) where iodine in water was 2.5 gm / l average weight of thyroid gland in kids (immature goats) was 1195.83 mg, - in Picar area where iodine in water was 6.8 gm / l the median thyroid gland was 728.4 mg. The high weight in Lunxheria kids, indicates that animals also suffered from struma.



## Discussion

At present, when they do a medical check-up, patients rarely come with complaints of struma, and we no longer find strumas with prominent deforming neck nodes as before the 80s. Cases of solitary nodes or cystic nodes are now reported. In the cases presented today for complaints from the thyroid gland, thyroiditis, especially Hashimoto's thyroiditis comes first that are followed by hypothyroidism and less frequent is Basedow disease hyperthyroidism.

We mentioned these because autoimmune thyroiditis and Morbus Basedow are more common in areas with iodine and in the areas with iodine rich foods consumption than in areas with iodine deficiency.

Even in our district of Gjirokastra, where it was endemic after its dominance through iodized salt, cases of autoimmune thyroiditis increased.

There is no previous study related with that (on autoimmune thyroiditis) for reasons also related to the impossible diagnosis. However, currently, cases of autoimmune thyroiditis are often observed by cases that go for an endocrinologic visit, not from any screening which was not possible, but which is required. Our findings suggest that family links to autoimmune thyroid disease are frequent.

Cases with autoimmune thyroiditis are not as high as endemic goiter (which used to be higher) but Hashimoto's autoimmune thyroid disease is more invalidating given that it causes 90% of hypothyroidism adding here also most morbus Basedow cases; and maternal and fetal consequences during pregnancy, etc.

The pregnancy causes marked modifications of the thyroid function in the mother, aggravating or favoring hypothyroidism, especially in the case of iodine deficiency or autoimmunity. Hypothyroidism in pregnancy is associated with a risk of complications for the mother and the fetus such as abortions, and delays in the child's psychomotor development. The gravity of these complications depend on the gravity of the hypothyroidism, and especially on the quality of the mother's treatment during pregnancy., etc. Such screening is not practiced *en masse* for reasons of economic cost but selected in cases where we have suspected it. For the damage it causes to the mother and to the fetus it is worth putting in the protocols during and after pregnancy ultrasound of thyroid, ATPO and TSH.

## Findings

In the last two years, the endocrinology cabinet has identified cases of autoimmune thyroiditis primarily by ultrasound screening of the thyroid and in suspected cases thereafter we have regularly sought TSH and ATPO in specific cases of ATG and IgG, IgM Epstein Barr virus.

The following is a comparison table of cases with autoimmune thyroiditis.

Comparative data of TSH, ATPO, and ecographic aspect

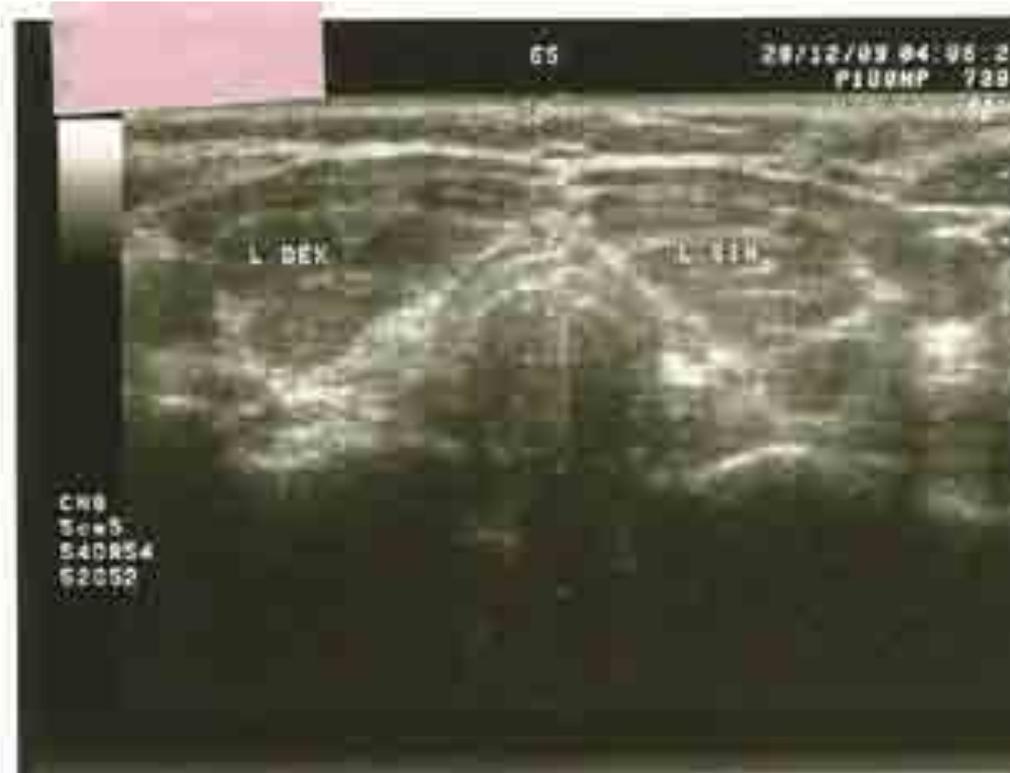
Total	TSH			ATPO		Ecographic aspect			
	high	low	normal	high	normal	Pseudo Node multiple	Butterfly shape Hypoechogene-etnicitet	Irregular Hypoecho-gene-etnicitet	izoekoene
313	113	38	162	301	12	222	39	46	6

In this study, 313 cases of autoimmune thyroiditis (these in only one endocrinology cabinet at the polyclinic) were reported in 113 cases with elevated TSH, 38 cases with decreased TSH, and 162 with normal TSH. This statistic does not include cases that were verified with Morbus Basedow. Cases of high TSH have been interpreted for hypothyroidism and generally had clinical signs. Cases with decreased TSH, high ATPO, and pseudonode were interpreted as Hashitoxicosis. Normalization was seen in recent dynamic follow-up cases of TSH or its increase.

Anti-peroxidase antibodies (ATPO), except for 12 cases that were isoechogenic, the others had had abnormal decreases in echogenicity (pseudonode) in ultrasound. This result suggests the selection of cases by ultrasound (which is usually performed by many researchers).

There were 79 cases of stria generally in those with hypothyroidism, indicating the late capture of cases where connective tissue developed in the affected areas.

Fibrous stria



Pseudo node and fibrous stria



Ultrasound data: heterogeneous hypo echogenicity, irregular shapes, by radiologists are called pseudo nodes. Some radiologists simply describe them as nodes without describing their irregularities and whether or not they have limitations (halos). The latter are of interest to the clinician to differentiate between genuine

Extensive hypo echogenicity



Butterfly shape hypo echogenicity



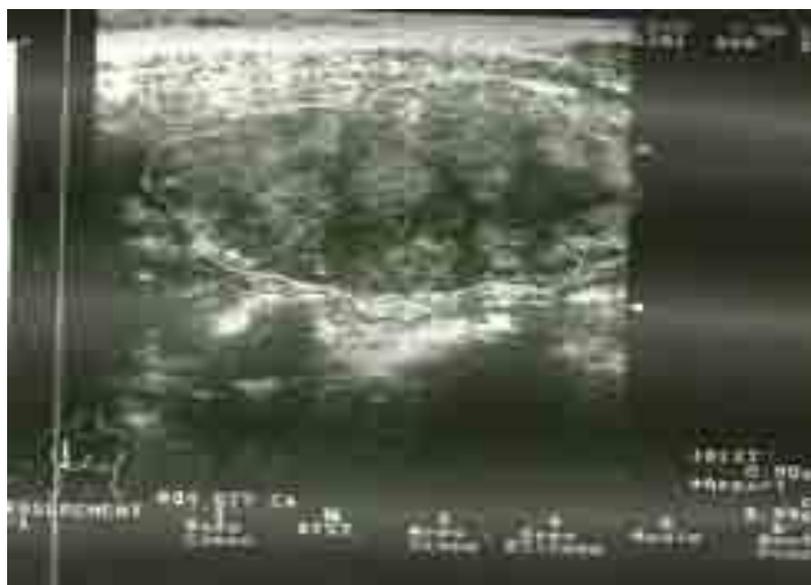
nodules (including cancer) and pseudo nods. In fact, in mild thyroid palpation, no nodes are found, it is mobile, in ultrasound shows large or small hypoechoogenic areas. In some of them, there are non-regular, halo-free, hyper echogenic zones. We have multiple pseudo nodes such as beehives or leopard skin. Pseudo Micronodules or multi microcysts (the latter is rare) when multiple are described as pseudo-nodules. We can find rare pseudo nodes in the lobe or in one lobe.

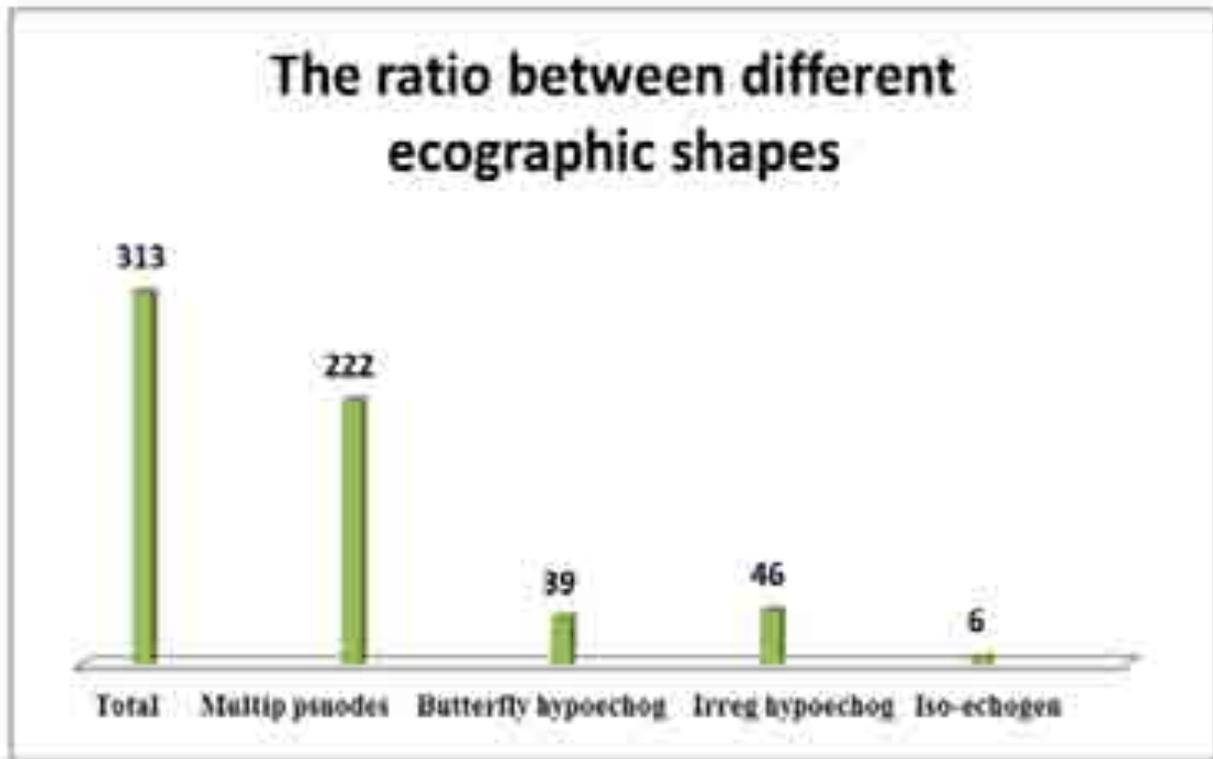
On different shapes, we have encountered stretches in one part of the hypo echogenicity lobes, or we may find them symmetrical in the shape of a butterfly in both lobes, and in the form of multiple pseudo nodes.

### Multiple Pseudonode



With hypoechogene and hyperechogene pseudo nodes





In the cases with pseudo nodes, 222 cases had multiple pseudo nodes; in 39 cases in a butterfly shape, 46 cases with irregular hypoechogenic areas of different sizes and only 6 cases thyroid was iso echogenic. The latter cases were assessed by the clinical findings and TSH; ATPO in special cases also anti-TG.

## Recommendations for following the treatment

To use:

1. Gluten-free diet excluding any foods with wheat, rye, barley, and oats.
2. Selenium
3. Zinc
4. Probiotics
5. In most cases for helicobacter pylori - with Flagyl (metronidazole), etc.
6. Spirulina especially when we have data on the active or dormant presence of Epstein Barr virus by doing IgG and IgM assays — Epstein Barr virus.
7. In cases of hypothyroidism with levothyroxine continuous follow-up is important. In cases of normal TSH, it is not applied, in order to allow the thyroid to compensate for the deficiency itself.

In most cases with this medication, the dynamics have been good. The purpose of treatment and diet has been to stop the immune activity and not to continue damaging the tissue. Cases of hypothyroidism should stay at the same level as not to go into the myxedema.

## Conclusions

1. The prevalence of endemic goiter in Gjirokastra district was reduced due to iodized salt. Visits to our endocrinology cabinet point out that at the forefront of thyroid diseases are thyroiditis, especially Hashimoto's autoimmune thyroiditis, followed by Hypothyroidism (90% of which is Hashimoto's thyroiditis) and Morbus Basedow.
2. Ultrasound findings suggesting for Hashimoto's thyroiditis also serve as screening, in all cases that result in Hashimoto in the ultrasound, you require tests such as TSH, ATPO, aTg, and IgG-IgM-Epstein barr virus. It is noteworthy that there is a high concordance between ATPO and the ultrasound.
3. Being unable to perform a mass screening is suggested as follows:
  - a. Ultrasound of thyroid, TSH, ATPO and in special cases IgG, IgM, Epstein Barr virus to be in the protocol during the pregnancy and postnatal examinations up to 18 months
  - b. Request TSH, ATPO, and ultrasound in all cases of hypothyroidism.
  - c. These TSH, ATPO, Ultrasound examinations should be performed for all autoimmune diseases like type 1 diabetes, rheumatoid arthritis, etc.
  - e. These examinations should be performed to all patients presenting with thyroid dysfunction.
  - f. These screening tests should be performed on the entire family of patients with Hashimoto Autoimmune Disease. These examinations should be done to all patients with muscular and articular pain, especially in winter, when rheumatologists have not concluded for any pathology.

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