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# Clinical guidelines for management of thyroid nodule and cancer during pregnancy☆

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**Abstract** Special considerations are warranted in management of thyroid nodule and thyroid cancer during pregnancy. The diagnostic and therapeutic approach of thyroid nodules follows the standard practice in non-pregnant women. On the other hand, differentiated thyroid cancer management during pregnancy poses a number of challenges for the mother and fetus. The available data show that pregnancy is not a risk factor for thyroid cancer development or recurrence, although flare-ups cannot be completely ruled out in women with active disease. If surgery is needed, it should be performed during the second term or, preferably, after delivery. A majority of pregnant patients with low-risk disease only need adjustment in levothyroxine therapy. However, women with increased serum thyroglobulin levels before pregnancy or structural disease require regular thyroglobulin measurements and neck ultrasound throughout pregnancy. Pregnancy is an absolute contraindication for radioactive iodine administration.


**PALABRAS CLAVE**
Guía;
Nódulo tiroideo;
Cáncer de tiroides;
Embarazo

**Guía clínica para el manejo del nódulo tiroideo y cáncer de tiroides durante el embarazo**

**Resumen** La conducta a seguir con el nódulo tiroideo y el cáncer de tiroides en la paciente embarazada requiere especiales consideraciones. El abordaje diagnóstico y terapéutico del nódulo tiroideo se rige por los criterios habituales en las pacientes no embarazadas. Por su parte, el manejo del cáncer diferenciado de tiroides durante la gestación implica una serie de retos para la madre y el feto. Los datos disponibles muestran que el embarazo no supone un

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aumento de riesgo de aparición o recurrencia de cáncer de tiroides, pero no está completamente descartado que la gestación pueda representar un estímulo en pacientes con enfermedad activa. Es importante tener en cuenta que en caso de ser necesario el tratamiento quirúrgico se recomienda llevarlo a cabo durante el segundo trimestre o, preferentemente, tras el parto. La mayoría de las gestantes con enfermedad de bajo riesgo solo requieren el ajuste del tratamiento con levotiroxina. Sin embargo, en mujeres que tienen valores elevados de tiroglobulina antes de la gestación o con datos morfológicos de persistencia de enfermedad deberá realizarse un seguimiento periódico mediante la determinación de tiroglobulina y realización de ecografías cervicales. La gestación supone una contraindicación absoluta para la administración de $^{131}$I.


## Introduction

Both the American Thyroid Association (ATA) and the Endocrine Society (ENDO) have recently published clinical guidelines reporting the main advances in recent years in the management of thyroid disease in pregnant women.[1,2] These documents, especially the ATA guidelines, are comprehensive, and their recommendations largely overlap.

We think that such a profusion of guidelines is unnecessary, because they may confound healthcare professionals.[3] Thus, we do not intend to provide an additional guideline, but to adapt and summarize for Spanish-speaking professionals the information included in the two American guidelines and, where appropriate, discuss any peculiarities specific to our situation. If a more in depth discussion of any concept is required, or the strength of or evidence for any particular recommendation needs to be known, the abovementioned guidelines may be consulted.

The Clinical guidelines for the management of subclinical thyroid dysfunction during pregnancy were published a few years ago in *Endocrinología y Nutrición*.[4] As a continuation of this document, the Clinical guidelines for the management of thyroid nodular disease in pregnancy have now been published. In order to allow for rapid consultation, the recommendations are presented in a clear, practical, and manageable question and answer format.

## Interpretation of thyroid function and goiter during pregnancy

Changes occurring in the thyroid gland during pregnancy have been thoroughly studied in recent years and may be both morphological and functional.[5] There are specific reference levels for both thyroid-releasing hormone (TSH) and other thyroid hormones during pregnancy, which should be taken into account and should be flagged by each laboratory to avoid erroneous interpretations.[1,6,7] This is of paramount importance when monitoring patients with a history of differentiated thyroid cancer, as will be seen later.

Thyroid cancer should be suspected in any patient consulting for goiter. It should therefore be taken into account that, depending on iodine intake, thyroid volume may increase during pregnancy by 10% (in areas with normal-high iodine intake) to 40% (in low intake areas). A study was conducted on 35 pregnant women in Valle de Arán, an area where iodine deficiency is traditionally endemic. The authors measured thyroid volume during the first and third trimesters of pregnancy. Median thyroid volume increased in these women from 7.5 to 9.5 mL during pregnancy ($p < 0.001$). The difference was also seen to be greater in women with multiple pregnancies. In agreement with studies in other geographical areas, this Spanish study concluded that both iodine deficiency and multiparity are goitrogen factors during pregnancy.[8]

## Pregnancy and thyroid nodules

Thyroid nodule management during pregnancy is usually based on the standard diagnostic and treatment criteria for the condition. The special characteristics of pregnancy are associated with changes in nodule prevalence, size, and growth, and to indications for treatment, particularly surgery.

As in non-pregnant women, ultrasound examination is essential in any thyroid nodule. Ultrasonography provides valuable information regarding the benign or malignant nature of nodules[9] (Table 1). In accordance with general criteria, cytological evaluation using fine needle aspiration (FNA) is indispensable in assessing thyroid nodules. Obviously, pregnancy has no effect on the cytological diagnosis of thyroid nodules. Table 2 summarizes the most commonly used classification, the Bethesda system.[10]

## Epidemiology

Both the appearance of new nodules and the volume of those already existing have been reported to increase during pregnancy.[1] However, nodules usually return to their baseline size after delivery[11] In a Spanish study, however, Jaén

**Table 1** Ultrasound features of thyroid nodules suggesting malignancy.

| Ultrasound feature | Suspicious feature |
|---|---|
| Echogenicity | Hypoechogenic |
| Nodule margins | Irregular |
| Peripheral halo of nodule | Absent |
| Intranodular vascularization | Increased |
| Calcifications | Presence of microcalcifications |
| Dimensions of nodule axes | Nodules higher than wider |
| Laterocervical adenopathies | Present |