

The Role of Percutaneouse 95.1 Ethanol Injection in the Treatment of Benign, Solitary, Cold, Cystic Nodule of Thyroid Gland

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ABSTRACT :

BACKGROUND:

A common problem facing the surgeon and the pathologist is evaluation of patient with apparently single thyroid nodule.

PATIENTS AND METHOD:

Over the period from August 1996 to September 1998 , (152 patients) with clinically solitary thyroid nodules were seen in the medical city , only 72 Of them proved to be single ,cold and cystic nodule and included in this study .

RESULT:

F.N.A.C was done for all patients (72),(57) patients of them were benign ,(6)patients were malignant or suspicious and(9) patients with indeterminate aspirit .pure spirit (ethanol injection into thyroid nodule was done in only 60 patients) ,42 patients (70%) with benign nodule were successfully treated with aspiration and spirit injection , 24 patients (40%) of them had complete disappearance of nodule, 18 patients (30%)had more than 50% reduction in the size of the nodule ,in 18 patients no significant reduction .

CONCLUSION:

All patients with solitary thyroid nodule should undergo F.N.A.C. to role out malignancy. Cold benign cystic thyroid nodules were successfully treated in 70% of cases , only 3% recurrence was observed .complication requiring hospitalization were not reported .

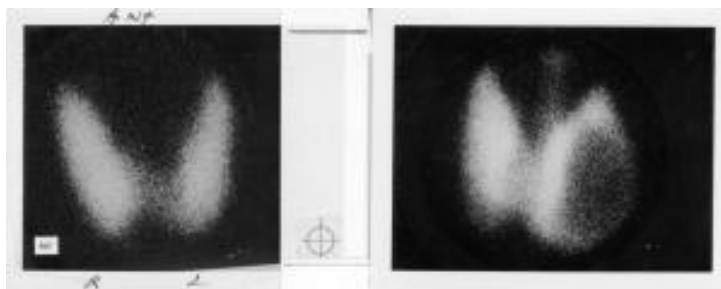
KEYWORDS:F.N.A.C., pure spirit injection, solitary cold cystic thyroid nodule.

INTRODUCTION:

Large majority of solitary thyroid nodules are benign and the incidence of malignancy was 10-20%¹ .the ideal investigation for the single thyroid nodule should differentiate between benign and malignant nodules.

THE INVISTIGATION :

A_ radio-isotope scan :- it can differentiate functioning (hot)or toxic which are benign from non functioning (cold)thyroid nodules which are malignant in around 16% of the cases².

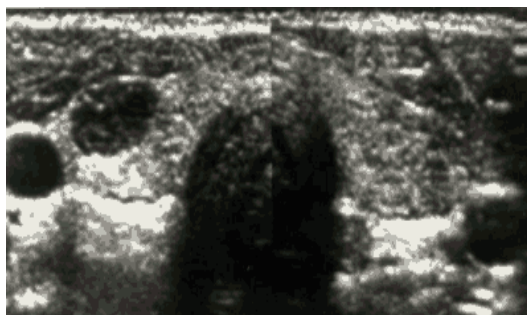


Scintiscans of thyroid, left normal
Right thyroid scan of cold nodule

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THE ROLE OF PERCUTANEOUSE PURE SPIRIT INJECTION

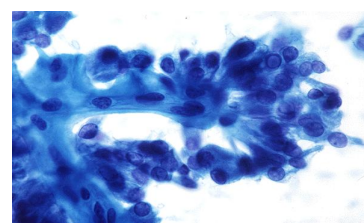
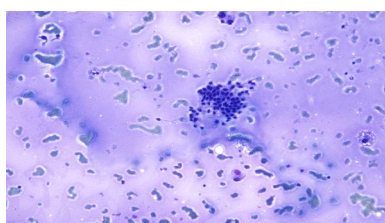
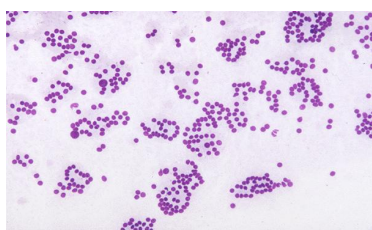
B_ULTRASOUND:- it can provide information regarding the consistency of cold thyroid nodule being cystic or solid, 2-9% of cystic thyroid nodule may harbor malignant tumor^(3,4)



U/S of thyroid: solid nodule in right lobe&homogenous apparent of left lobe

C_FINE NEEDLE ASPIRATION CYTOLOGY:- it is safe, accurate and many now advocate that F.N.A.C apply in discrimination to every thyroid nodule and many other believe that F.N.A.C may be used to diagnose ,treat and sometimes cure the cystic thyroid nodules⁽⁵⁾. Colloid nodules, thyroiditis, lymphoma, carcinoma are all within the diagnostic scope of

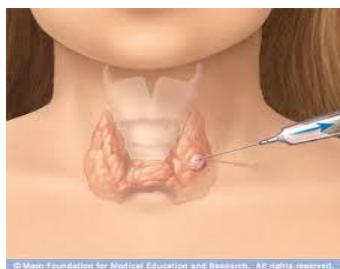
F.N.A.C .^(6,7) The role of percutaneous pure spirit injection of solitary, thyroid nodules was first proposed by Liviraghi in 1990 as a possible therapy for autonomously functioning toxic thyroid nodules⁽⁸⁾. 95%pure spirit injection is safe, low cost and effective therapeutic procedure in patient with benign thyroid nodule⁽⁹⁾



PATIENT AND METHOD:

Over 2 years, 152 patients with clinically single thyroid nodule, of them only 72 patients proved by ultrasound and by Tm⁹⁹ thyroid scan to be solitary,cystic and cold nodules, only 31 patients tested for serum thyroid hormones.

All of the 72 patients underwent F.N.A. as Lowhagen and others¹⁰. described by Sixty patients had percutaneous injection of 95%spirit into cystic thyroid nodule .



THE ROLE OF PERCUTANEOUSE PURE SPIRIT INJECTION

TECHNIQUE:

Standard technique was used as described by low hagen ,F.N.A was performed with patient in supine position and neck was extended , the patient was instructed to refrain from swallowing .the nodule steadied by left hand , no. 21 gauge hypodermic needle was attached to a 20 cc syringe , the needle is inserted into the nodule with continuous suction,the needle is moved quickly in and out ,when aspiration had been completed small amount (1-5 ml)of 95% spirit is injected slowly on the bases of the aspirated volume ,without removing the needle (figure no.1,2&3)

There is no need for bed rest or hospitalization for observation .spirit injection was done once in 44 patients, in 10 patients spirit injection was done twice and in 6 patients three times

FOLLOW UP:

After spirit injection follow up the patients clinically and by ultrasound for 1-2 years, first visit one week after to check the result of cytology.

RESULT :

Only 72 patients were met the criteria for inclusion in this study.

F.N.A.C :

Was done for all 72 patients and repeated aspiration had been done in 12 patients because of insufficient materials and because of recurrence of thyroid nodules. The cytological result were summarized in the table 1

Table 1:, the cytological result.

F.N.A.C diagnosis	NO.
*Benign	57
*suspicious	4
*malignant	2
*indeterminate or inadequate	9

Percutaneouse 95% spirit (ethanol)injection of cystic thyroid nodule was done for 60 patient ,in 12 patients spirit injection was not done because of small amount of materials aspirated (0.1-0.2 ml),of them 10 cases operated upon because of cytological findings were malignant ,suspicious or indeterminate_

After spirit injection we followed the patients clinically and by ultrasound scan for 1-2 years , in one month after treatment we found that nodule size reduction was greater than 50%

versus baseline in 42 patients (70%), 24 patients of them (40%)had complete disappearance of the nodule , 2 cases showed recurrence in 6-12 months later on . in 18 patients (30%) no significant reduction in the size of the nodule {either no reduction or less than 50% versus baseline }, five of them operated upon because of cytological indication (malignant , suspicious or indeterminate),or repeated rapid re- accumulation , the other 13 patients not operated on because they had benign cytological diagnosis , we kept them on close follow up for 1-2 years as shown in table 2

Table 2 : 95% spirit injection results.

Reduction in nodule volume	After 1 month		6-12 months follow up	
	No	%	No	comment
Complete disappearance	24	40%		
50% reduction versus baseline volume	18	30%	16	2-recurrence (benign FNA cytology)
No marked reduction	18	30%	13	5 patients underwent operation
total	60			

Repeated aspiration and spirit injection (two or three times) was done in 16 patients, either because of re-accumulation or no size reduction had been obtained.

DISCUSSION:

The high incidence of thyroid nodules (4-7% of general population of USA) coupled with rarity of thyroid cancer (3% of all thyroid nodules)¹², has stimulated continuing search for screening modalities that can identify those patients who are at risk of thyroid cancer.

F.N.A.C. recently has been embraced as an effective screening test for thyroid cancer, it is simple, low cost, effective and it has high diagnostic accuracy in thyroid disease.

The F.N.A.C of 57 patients were with benign cytology saved from surgery, and 6 cases were with either malignant or suspicious cytology, all of the 6 patients had surgery in whom 4 proved to be malignant, and the other 9 patients with inadequate aspirate, 7 of them had been operated upon, in whom 3 patients proved to be malignant, 2 patients refused the operation, so 7 patients with malignancy out of the 13 patients underwent operation benefited from surgery.

The role of pure spirit injection in management of benign cyst thyroid nodule:-

VERDE and his colleague had found that 80% of patients with benign cystic cold thyroid nodule get nodular volume reduction greater than 50%, after one month from pure spirit injection with 3% recurrence after one year follow up⁽²⁾.

PAPINI et al had found non toxic solitary thyroid nodules were successfully treated in 90-100% of patients by percutaneous ethanol therapy (PET) and recurrence rate in only 2-5%⁴.

Panunzi et al⁸, treated 30 patients with autonomous thyroid nodules by percutaneous ethanol therapy (PET), his experience confirms an excellent response and symptoms of hyperthyroidism and hormonal level became normal and at ultrasound evaluation all nodules had significant shrinkage.

In our study the overall end result over long term follow up was 40 patients (66.6%) had significant volume reduction of benign cystic thyroid nodule, 24 patients of them (40%) had complete disappearance of thyroid nodule. If we compare our study with the other we find reduction in the size of the thyroid nodule in 30% of the patients while complete disappearance of thyroid nodule is not mentioned in other studies, which was found in our study in 40% of the patients. thyroid damage induced by spirit characterized by coagulative necrosis and haemorrhagic infarction

due to vascular thrombosis and is well defined from surrounding thyroid parenchyma. And in cystic nodules the spirit will irritate the wall of the cyst to induce fibrosis.

CONCLUSION:

1-all patients with solitary thyroid nodule should undergo F.N.A.C.

2-percutaneous 95% spirit injection of cystic thyroid nodule is safe, low cost and effective therapeutic procedure in nodule, there is great and frequent reduction of thyroid nodule volume.

3-this method of treatment will reduce the number of thyroid operation and save unnecessary thyroid operation. so we recommend to use it for only solitary cystic thyroid nodules.

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