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ULTRASOUND EVALUATION OF THYROID GLAND DISEASES IN PATIENTS REFERRED FOR ULTRASOUND IN A TERTIARY CARE HOSPITAL IN GARHWAL

Radiodiagnosis

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ABSTRACT

The present record based study of thyroid gland diseases by ultrasound evaluation done in HNB Base Government teaching hospital situated in hills of Garhwal is done to assess the burden of thyroid diseases in hilly population of this region. The diseases assessed are common as in other parts of world except for higher incidence of iodine deficiency related conditions which is expected here due to less iodine intake in diet and water. The aim of the study is to evaluate such conditions by ultrasound and provide a baseline data of existing thyroid related diseases in hilly population to the clinicians in general to let them know beforehand as to what trend exists in the locals and what other tests need to be performed and what treatment would be suitable; and even even the preventive measures can be adopted thereby.

KEYWORDS

Thyroid Gland, Ultrasound, Endemic Goiter, Chronic Thyroiditis

Introduction:-

Thyroid gland diseases are common worldwide with significant burden of thyroid diseases in India too, with about 42 million Indians suffering from such diseases. Imaging of thyroid as well as parathyroid glands located behind thyroid gland can be performed by ultrasound, CT, MRI and nuclear medicine by Technetium -99m sestamibi scan[6]. Recent availability of accurate laboratory tests, FNAC, FNAB, high resolution ultrasound along with ultrasound guided FNA, palpation guided FNA, have greatly influenced thyroid gland evaluation in recent days[2, 6, 7]. There is also increasing use of color Doppler and radionuclide imaging for gland evaluation in various diseases which we tried to evaluate by HRUS in neck referred for swellings and other symptoms related to thyroid and record causes of such clinical presentation so as to guide referring clinicians as to the nature and extent of lesion, whether diffuse or focal nodular, benign or malignant, cystic or solid, operable or inoperable and so and so forth[2, 6, 7]. Even a small swelling of thyroid gland is visible or palpable clinically as gland is superficial and thus thyroid gland diseases are diagnosed early[6, 7]. Recent studies revealed that 12 % of adults have a palpable goiter and that autoimmune disorders are commoner than iodine deficiency goiter as now society is iodine sufficient due to routine global use of iodized salt[5].

Materials and methodology:-

The present record based study was performed in department of Radiology, HNB Base Government teaching hospital, Srinagar Garhwal situated in hills of Garhwal in mid-Himalayan range. Total 3385 patients were scanned in year 2016 and 18 over a period of one and half years with total 108 cases referred for neck ultrasound. Neck ultrasound was performed with linear array transducer with 7-10 MHz frequency on L& T Sonalisa USG machine and Toshiba Nemio SSA 510A color Doppler machine with patient in supine position with neck slightly extended by placing a pillow behind upper back or shoulders for proper visualization of glands. Scanning is done in both longitudinal and transverse planes with patient asked to swallow in case lower poles are poorly visualized. Entire gland including isthmus, carotid vessels and jugular veins are visualized along with scanning positively for any adenopathy in neck.

Results:-

Most common condition we found in our study was Chronic Thyroiditis (Hashimoto's Thyroiditis) – total 13 cases (28.9 % cases) out of 45 cases, affecting predominantly females with male: female ratio being 01:12); mostly of age group 20 to 40 years age-group with three cases affecting adolescent females of 11- 16 years age group. Usually most had reduced or normal vascularity on Doppler, hypothyroid or euthyroid clinically with few having increased vascularity with hyperthyroid state clinically. USG showed reduced echogenecity with coarse but overall homogenous echotexture of gland with slight enlargement of gland showing slightly lobulated contours **[Figures 5 and 7].** One case in chronicity in 39 years old woman (a staff nurse) showed reduced size due to fibrosis with hetero-echoic texture and hypothyroid state, obesity, decreased metabolic state clinically. All were hill-residents. One case in addition had lipoma of neck, and one had a small benign colloidal nodule. Scarring of gland was seen in four cases. [**Tables I to V**]

Other main condition is Multinodular colloidal goiter; total 8 cases – with male: female ratio of 2:6; all adults (females of age group 24 – 65 years). Notably one old lady of 65 years age had severely enlarged gland [**Figure 4]** with inspiratory stridor clinically with 'scabbard trachea' on radiography. Another case was a 53 year male patient referred from Radiotherapy department, but fortunately had no malignant features ultrasonically. Nine cases of Grave's disease were seen (with male : female ratio of 1: 8)who had hyperthyroid state clinically with typical USG grayscale features and Color Doppler features as shown in **Figures 2 and 3.** Most of the patients belonged to age-group of 20 to 35 years age, with only one case of 13 years girl having features of Grave's disease with typical tremors of outstretched hands. Two cases (one female and one male) had thyroid orbitopathy.

Benign thyroid nodule [**Figure 1 and 6**] was seen in 8 cases (male: female ratio of 02:06) of age group 16- 50 years. A forty years lady had a solid small 15 x 3 x 3 mm sized hyperechoic nodule in presence of chronic Thyroiditis, suspicious of colloid nodule. Another fifty year lady had 4.4 x 4 x 1.5 cm sized solid thyroid nodule with malignant features and was advised FNAC but was lost for follow-up. A suspected thyroid adenoma of size 21 x 14 x 6 mm was seen in 29 years female in Thyroid gland. Thyroglossal duct cyst (TDC) was seen in two children, with a 4 years girl with midline infrahyoid TDC and another 12 year girl having 18 x 5 mm TDC at level f hyoid bone on right side just off the midline with typical ultrasound characteristic of a cyst.

Being a hospital situated in Himalayan mountain ranges, and referrals from across the Garhwali mountain ranges- it is expected to have low iodine content in water, food, vegetables etc. as traditionally accepted to be the common case of thyroid gland related disorders namely endemic goiter(iodine deficiency goiter).

Our study correlates well with epidemiological studies in India wherein incidence of Hashimoto's thyroiditis is quite common in India followed by endemic goiter[5]. We did not find much malignant mass in our study less clinical load of neck ultrasounds. Only one suspected case of malignant mass of thyroid was lost for follow up. Colloidal nodules and endemic goiters are obviously due to less iodine intake in hilly terrains. Iodine deficiency state was seen with normal gland morphology with reduced echogenecity of glands with clinically euthyroid state in four cases.

Discussion (General considerations):-

Embryology, Anatomical, physiological aspects and ultrasound characteristics of Thyroid gland:

The thyroid gland develops from median and lateral anlages[2]. Median anlage during 5th gestational week arises from midline of oropharynx and gives rise to follicular cells, which secrete thyroid hormones eventually. Lateral anlage arises from ultimobranchial bodies (originating from 4th and 5th branchial pharyngeal pouches) gives rise to parafollicular cells, which secrete calcitonin eventually[2]. By 10th week of gestation, in utero, the right and left anlage fuse with median anlage at the foramen caecum of tongue base and descends gradually downwards along midline to get situated in anterior lower neck draping the trachea. Sometimes lower down embryological descent of duct leads to mediastinal thyroid whereas abnormal non-descent leads to lingual thyroid[7].

The gland consists of right and left lobes joined by isthmus across trachea in midline, and measures about 5 X 2 X 2 cms in size in each lobe, weighing about 15 to 20 gm wt[2,7]. It is supplied by paired superior and inferior thyroid arteries (branches of external carotids, and thyrocervical trunks respectively) and drained by superior, middle and inferior thyroidal veins[2]. The gland secretes two hormones 1) tri-iodothyronine (T3) 2) Thyroxine (T4), under mediation by TSH from anterior pituitary; which in turn is regulated by hypothalamic center through TRH (thyrotropin releasing hormone)[2]. On ultrasound, normal thyroid gland has a typical homogeneous ultrasound appearance with greater reflectivity than the adjacent strap muscles[7]. The lobes have oval oblong shape with normal AP thickness of about 2 cms. Any gland size of thickness greater than 2 cms is considered pathological[2,7]. With the help of high resolution ultrasound (HRUS), we can visualize the adjacent thyroid arteries, veins and even recurrent laryngeal nerve, vagus nerve along carotid vessels, and sometimes normal superior parathyroid glands[2,3,6,7].

The gland is vital for regulating basal metabolism including heart rate, cardiac output, lipid metabolism, skeletal growth, heat production[2]. As gland is superficially located in neck, ultrasound helps in ascertaining morphological changes occurring as a result of various thyroid disorders, with use of linear high frequency probes (7 to 10 MHZ); with assessment of any local spread of disease and any lymphadenopathy[2,6,7]. It can be used for guided FNAC and drainage of any cyst or abscess. Study is performed in supine position with neck bit extended[2,7]. Carotids are located during USG. Vascularity of the gland and lesion can be evaluated by Color and Power Doppler[2,7].

Normal parathyroid glands are rarely located on routine ultrasound due to small size of glands, but in cases of hyperparathyroidism - preoperative localization of parathyroid adenomas is done by sonography or scintigraphy wherever needed in current scenario with radiological evaluation of skull bones, hands which shows stigmata of hyperparathyroidism[6].

Various pathological conditions affecting thyroid gland:-

1) Lingual thyroid: seen at the base of tongue, can be functional and the only functioning gland in body; best assessed by CT[2,3]. It can rarely lead to malignancy[3,7].

2) TDC (Thyroglossal duct cyst): Most common congenital neck mass, which arises from incomplete degeneration (involution) of the epithelial tract of the thyroglossal duct leading to cyst formation along its tract of descent, presenting clinically with palpable anterior midline neck mass which moves with deglutition[2,3,7]. It is usually paramedian when infrahyoid and in midline when suprahyoid in location[2,3]. It is seen as smooth circumscribed cyst with homogeneous hypoechoic appearance on USG (ultrasonography)[2]. 85 % TDCs are midline lesions whereas 15% are paramedian and about 75 % TDCs are infrahyoid in location[2,3,7].

3) Diffuse thyroid gland disorders include: a) Thyroiditis b) Diffuse goiter (endemic goiter).

Thyroiditis refers to inflammatory gland disease usually autoimmune in origin; rarely by infective process[2,7].
Conditions include;

I) **Hashimoto's thyroiditis**(Chronic lymphocytic thyroiditis) – most common form worldwide; common also in India- which is a painless, diffuse gland disease affecting middle aged females, with reduced echogenecity of gland showing homogeneous echotexture with minimal coarseness, without any lymph node enlargement[2,7]. **[Figures 5 and 7]**

ii) **Acute / acute suppurative thyroiditis**: - as a result of viral, bacterial or fungal disease, especially in immunocompromised individuals[2,7].

iii) de Quervain's thyroiditis: a subacute granulomatous disease which is self limiting.

iv)Reidel's thyroiditis (Reidel's struma): a rare chronic disease with typical fibrosing reaction destroying gland with local spread[2,7].

In India, commonest form seen is Hashimoto's thyroiditis which we refer here as chronic thyroiditis on USG, it also includes juvenile autoimmune thyroiditis and focal lymphocytic thyroiditis[5]. Research reveals that about 16.7 % adult Indian population has anti-thyroid peroxidase (TPO) antibodies and 12 % have anti-thyroglobulin (TG) antibodies[5].

v) Grave's disease: is a common autoimmune disorder with hyperthyroid state (thyrotoxicosis) with diffuse organomegaly showing lobulated contours, reduced echogenecity with coarse echotexture on sonography with high vascularity on Color and power Doppler study[2,7].**[Figures 2 and 3]**

Other uncommon forms include silent painless thyroiditis and postpartum thyroiditis[2]. On ultrasound, if the isthmus thickness increases more than a few millimeters it can be suggestive of diffuse gland enlargement.[7]

vi) Endemic goiter and Diffuse non-toxic goiter:

At the outset, the term 'goiter' strictly speaking applies only for non-neoplastic and non-inflammatory thyroid enlargement for which hyperplasia (probably due to iodine deficiency) is the commonest cause[3,7]. Commonest cause of goiter being iodine deficiency in India, usually most are euthyroid especially in diffuse non-nodular enlargement of gland, which usually is followed by colloidal involution, nodule formation and formation of Multinodular goiter(MNG)[2,5]. Histologically there is initial cellular hyperplasia of acinar cells followed by micronodule and then macronodule formation; with subsequent liquefactive necrosis, accumulation of blood, serous fluid, and later colloid substance in the nodules[7]. Now the MNG disease can be non-toxic or may lead to thyrotoxicosis[1,2,3,7].

The enlarged gland has hyperechoic or hypoechoic nodules on sonography with focal hemorrhages which can lead to fluid-fluid levels, focal punctuate discrete and coarse calcification which usually are punctate and non-shadowing, but sometimes show 'comet-tail artifacts' on sonography[2,3,7]. Sometimes the colloid spaces in nodules are wide which give rise to typical 'sponge-like' USG appearance[7]. Flow can be seen peripheral to nodules, but no flow is seen centrally in colloidal cyst[2,3,7]. Cyst formations are common with hetero-echoic asymmetrical gland enlargement, scarring of gland and the goiter may show mediastinal extension in 20 % cases, into anterior mediastinum with resultant stridor[1,2,7]. Usually lesion extends posterior behind oesophagus and adjacent trachea to involve the retro-tracheal space[7]. Narrowing of trachea with tracheomalacia is commonly referred to a "Scabbard trachea' which can be assessed by CT and radiography[2,7]. Rarely malignancy can develop in MNG[7]. Thyrotoxicosis is another complication which leads to high output cardiac disease and cardiomegaly as seen on chest radiography, with engorged pulmonary vasculature[1]. This is due to direct impairment of myocardial metabolism. Barium swallow sometimes in larger goiters shows smooth indentation on esophagus in neck[1].**[Figure 4]**

vii) Nodular thyroid disease:

It includes benign nodules and malignant nodules. Benign nodules are usually well marginated, having hypoechoic halo around and mostly cystic in nature, containing internal debris with 'comet-tail' artifacts on USG[2,3,7]. If solid, they are usually hyperechoic[2,7]. Then FNAC under USG-guidance can be contemplated to rule out malignancy as thyroid adenomas cannot be differentiated from carcinomas on ultrasound[2,7]. Thyroid adenomas (usually follicular type) are benign neoplasms of thyroid with a fibrous capsule, usually solitary and non-functional; usually<4 cms in size are slow growing lesions[2,3,7]. Hurtle cell adenoma a rare variant also occurs in the gland[2,7]. On cytology, follicular adenomas cannot be distinguished from follicular carcinomas; though USG can help in guided FNAC/ FNAB[3,7]. USG is helpful also in guided nodule alcohol ablation[2,3,7]. Colloidal nodules usually have an eggshell calcification, cyst formation and thin regular hypoechoic halo[2,7]. They

contain inspissated colloid seen as hyperechoic foci[2,7]. [**Figure 1**]

However ultrasound has less resolution than CT for identifying adenopathy in neck. Indeterminate and suspicious thyroid nodules require further evaluation with FNA under ultrasound guidance[7]. Few characteristic features on ultrasound can differentiate benign from malignant lesions of thyroid[2, 7]. Benign thyroid lesions and goitrous nodules have thoroughly cystic appearance, have comet tail artifacts, fluid -fluid levels and can have widespread cystic changes in isoechoic or echogenic nodules. Nodules are sometimes highly echogenic with perilesional echopoor halo; some have peripheral eggshell calcification or have discrete focal calcifications. Nodules have perilesional blood flow on Color Doppler.[**Figure 6]**

On the contrary, a malignant neoplasm has following ultrasound signs[2,7.]

1) it is an echopoor lesion with variable solid and cystic areas
2) it has an irregular border
3) it has a thick poorly visible irregular border
4) it shows intranodular haphazard blood flow on Doppler
5) they present as hypervascular lesions
6) they can show fine intralesional microcalcifications(10-15% cases)
7) they show sometimes invasion of surrounding vessels, trachea, thyroid cartilage, esophagus etc.
8) they usually present with cervical adenopathy which can show cystic necrosis and calcifications within.

If the age of the patient is less than 20 years or greater than 60 years, the suspicion of malignancy increases[2, 7]. The other risk factors for malignancy include male gender, low dose irradiation of head and neck during childhood, positive family history, history of MEN (multiple endocrine neoplasia) syndrome, long standing goiter and ipsilateral cervical lymphadenopathy[2, 3, 7]. Symptoms include pain with gland enlargement, hoarseness of voice[2,3,7]. Rarely Color Doppler is helpful to differentiate benign from malignant thyroid lesion[2,7].

The malignancy develops from follicular and parafollicular cells, with four histological variants, out of which the papillary thyroid carcinoma is most common (75- 90% cases); other four cellular variants being-mixed papillary and follicular variant, follicular, medullary and anaplastic variants[2,7]. In conclusion; differentiation of a benign nodule from Ca thyroid cannot be reliably made on USG[2,3,7]. Sometimes cystic or calcified enlarged lymph nodes can be biopsied to confirm malignancy if present[2,7]. Local spread by malignancy can be assessed on ultrasound like thyroid cartilage invasion, tracheal and esophageal invasion, and carotid vessel invasion[2, 7]; in some dicey cases contrast enhanced CT is useful[7]. Calcified neck lymph nodes are common in papillary carcinomas[2, 7]. Hematogeneous spread commonly to lungs, rarely to brain and liver are seen with typical 'cannon-ball' metastases in lungs[1,2,7].

In India, National Cancer Registry program (NCRP) data of year 1989 to 1993 reveals that nationwide frequency of thyroid cancer is about 0.1 to 0.2 % with higher frequency in Thiruvanthapuram (Kerala)[5]. The commonest **are papillary carcinomas (51%), follicular carcinomas (23%), and anaplastic carcinomas (22%), and rest including medullary carcinomas about 4 %[2, 7].** Papillary carcinomas are slow growing neoplasms with very good prognosis, showing fine microcalcifications which histologically contain '**psammoma** bodies' which are seen in metastatic lymph nodes, as it spreads by lymphatics and blood[7]. Medullary Ca arises from parafollicular cells, seen in association with MEN syndrome (MEN IIA) and spreads usually by lymphatics. '**Incidentalomas'** are the incidentally detected innocuous non-palpable benign 2- 4 mm nodules in thyroid gland seen on HRUS; which need follow-up by clinical neck palpation[2,7].

On ultrasound, lesions are hypoechoic (63%), iso-echoic (26%), and can have in 10- 15 % cases – calcifications within with ipsilateral adenopathy in neck. Dense chunks of calcification on CT usually suggest medullary carcinomas. Follicular carcinomas show capsular and vessel invasion with higher propensity towards metastases through hematogeneous route to bones and lungs[2,7]; whereas papillary carcinomas show higher propensity for lymph node spread with typical; cystic lymph nodes in neck showing microcalcifications[2, 7]. Anaplastic carcinomas of thyroid usually are seen in elderly women, and show rapid spread to trachea, esophagus, carotids and lymphatic spread with poorer prognosis; frequently inoperable at the time of clinical presentation[2,7].

Non-Hodgkin's lymphoma of thyroid is a rare disease seen in elderly woman with common occurrence in presence of pre-existing Hashimoto's thyroiditis[7].

Thyroidal metastatic disease is seen from primaries from Ca Bronchus, malignant melanoma, and renal cell carcinomas[3,7].

viii) Hypothyroidism: Congenital hypothyroidism is very common in India; studies in Mumbai reveal incidence as high as 1 in 2640 neonates with worldwide values of 1 in 3800 neonates[5]. Cause is insufficient iodine ingestion[5].

Now a word about Hyperthyroidism in India; wherein incidence is 0.6 to 1.6 % with a third having positive anti-TPO antibodies[5]. Legendary salt iodization programmes supported by GOI, reduced incidence of congenital hypothyroidism, but prevalence of goiter remained the same. Endemic goiter is common all over India and not just in hilly regions of India[5].

Thyroid- associated orbitopathy:-

Swelling of extraocular muscles in both orbits due to deposition of mucopolysaccharides secondary to hyperthyroidism is termed as thyroid associated orbitopathy or thyroid ophthalmopathy[2, 3, 4, 7]. The disease process involves only the muscle bellies instead of myotendinous junctions leading to bilateral proptosis[3, 4, 7]. It is also termed as 'Graves ophthalmopathy[t3, 7]. It occurs most commonly in middle aged women with thyrotoxicosis and reduces with corticosteroid therapy[3, 7]. The incidence of extraocular muscles is variable and characteristic and remembered by a mnemonic - I'M SLO(W)- suggesting more involvement of inferior rectus > medial rectus > superior rectus >lateral rectus > superior oblique muscle in the given order[4, 7]. Associated lacrimal gland can be seen[4]. In TAO 90 % cases are clinically hyperthyroid; other 10% cases are euthyroid[4,7]. This suggests autoimmune process[4, 7]. These patients present with bilateral proptosis, lid retraction and reduced eye movements[4].

Conclusion –

To summarize, HRUS is now used as first diagnostic modality in the investigation of nodular thyroid disease. We could assess the predominant presence of chronic thyroiditis, endemic goiter and colloidal nodules with iodine deficient state as on ultrasound in the local population of Garhwal with less incidence of malignant neoplasm as compared to other states of India and worldwide. The major applications of HRUS in thyroid gland diseases are, 1) to detect nodule in gland and other masses before thyroidectomy 2) to differentiate endemic goiter from other histological variants of nodule in thyroid.3) to determine local and distant spread of malignant neoplasm of thyroid. 4) to detect residual / recurrent malignant lesions.5) to detect metastatic spread in neck and abdomen.5) to assist in guided aspirations, guided FNAC, FNAB. 6) To precisely target nonpalpable thyroid masses.

The main advantages of ultrasound are 1) it is easily available 2) it is inexpensive 3) it is noninvasive 4) it requires short time to examine patient 5) patient compliance is high as it is comfortable to use. Main limitations of USG are 1) it is not useful to locate retrotracheal and meditation extension of goiter 2) it cannot dogmatically differentiate benign from malignant lesions in thyroid gland.

Table I- Breakup of Neck Ultrasound cases

Sr No	Total Neck USG studies performed	108	100% (percent)
1	Thyroid gland diseases	45	41.67% cases
2	Salivary Gland diseases	24	22.23 % cases
3	Rest of the neck pathological conditions	39	36.12% cases

Table II- Disease conditions affecting Thyroid gland as seen on Ultrasound (Rest of 63 cases of neck ultrasound had normal thyroid.

Sr No	Thyroid gland diseases found	Total cases(n= 45)
1	Multinodular colloid goiter	08 (17.78%)
2	Subacute Thyroiditis	13(28.9%)
3	Graves disease	09(2.2%)
4	Benign colloidal nodule	08(17.78%)
5	Acute Thyroiditis	01(2.2%)
6	Thyroid neoplasm	02(4.4%)

7	Thyroglossal cyst	02(4.4%)
8	Iodine deficient thyroid gland	04 (8.8%)

Table III: - Age-wise distribution of cases with Thyroid gland diseases.

Sr No	Age-group	Number of cases (n= 45)
1	0-5 years	01(2.2%)
2	6-10 years	00
3	11-20 years	09(20%)
4	21-40 years	20(44.44%)
5	Above 41 years	15(33.33%)

Table IV: - Sex-wise distribution of cases.

Sr No	Sex	n= 45
1	Male patients	06(13.33%)
2	Female patients	39(86.67%)

Table V: - Neck pathologies on ultrasound other than thyroid gland diseases.

S.No	Neck pathologies	Number of cases (108)
1	Salivary gland diseases	24
2	Cervical lymphadenopathy	25
3	Non-Hodgkin's Lymphoma	01
4	Fascial space infections	05
5	Sternomastoid tumor	04
6	Benign cystic neck lesions	03
7	Lipoma	01
8	Brachial plexopathy	01

Figure 1:- Ultrasound of thyroid gland in adult showing a benign oval colloidal cyst with well-defined margins and posterior acoustic enhancement (two such lesions in right lobe, one in left lobe and a solid nodule in left lobe inferiorly).

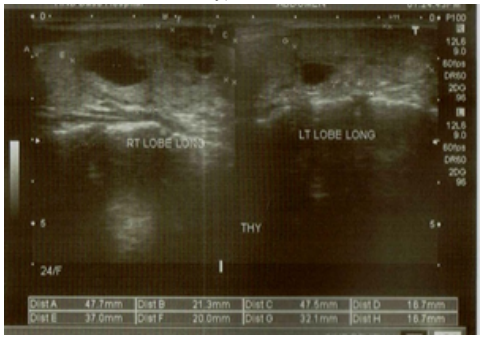


Figure 2:- Color Doppler imaging of Thyroid gland which is diffusely enlarged, with reduced echogenecity; showing increased vascularity with appearance termed as 'Thyroid inferno'- typical of Grave's disease.

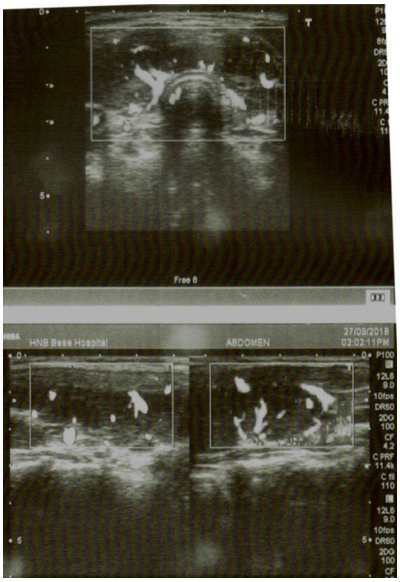


Figure 3:- Another case of Grave's disease of Thyroid gland with 'Thyroid Inferno' (term coined by Ralls) on Doppler and typical gray-scale ultrasound characteristics.

Figure 4:- Large multi-nodular colloidal goiter scanned with convex abdominal probe being very large with typical hetero-echoic solid as well as cystic components and calcified colloidal matrix scattered in pathologically enlarged dysfunctional (usually hypothyroid) gland.

Figure 5:- Hashimoto's Thyroiditis (chronic form of Thyroiditis) in a 25 year woman showing hypoechoic slightly enlarged gland with slight lobulations of contour.

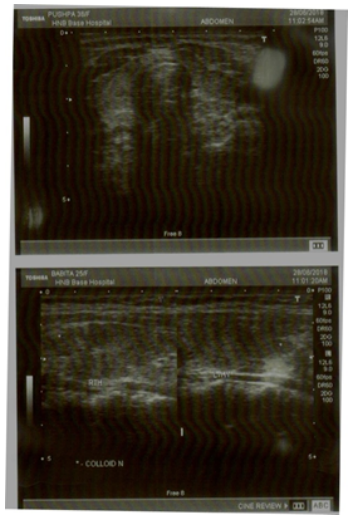


Figure 6:- Ultrasound of thyroid gland is showing a solid lesion with rounded contour and small cystic component within (benign nodule).

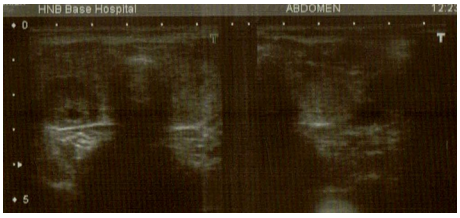
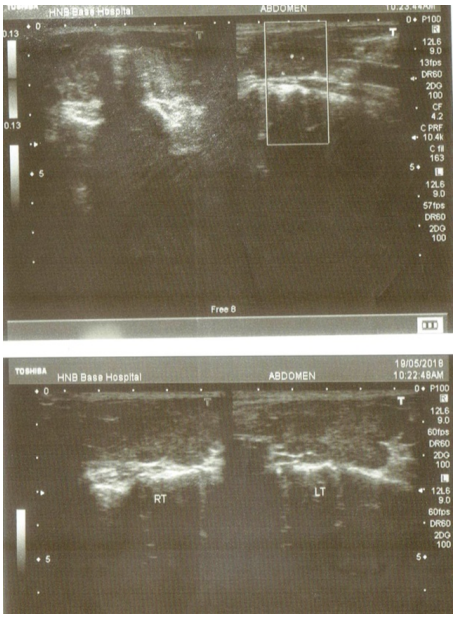


Figure 7:- Another typical case of chronic Thyroiditis with lobulated margins with mild increase in vascularity.



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