South Tees Hospitals NHS
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Qualitative analysis of ultrasound reports assessing radiological descriptors of thyroid nodules - a retrospective pilot audit

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Introduction:

Ultrasound scanning (USS) of the thyroid gland is the recommended first line investigation for assessing suspected thyroid nodule. Specific radiological findings including microcalcification, hypoechogenicity, presence of a halo sign, solid consistency and heterogeneity with ill-defined margins raise the possibility of malignancy.

These ultrasound findings together with fine needle aspiration cytology (FNAC) guide the treatment of thyroid nodules. The aim of this audit is to evaluate the quality of thyroid ultrasound reporting across two hospital sites in the north-east of England.

Methods:

We conducted a retrospective audit at The James cook University Hospital (JCUH) and the University Hospital of North Tees (UHNT) between March 2012 and May 2013. All patients who had a solitary thyroid nodule or a dominant nodule within a multinodular goitre at ultrasound scanning (USS) were included. Patients with multinodular goitre and multiple/incidental asymptomatic nodules or thyroiditis on USS were excluded. The following data for each thyroid USS report was collected from the electronic reporting system:

1. Presence of microcalcification
2. Echogenicity
3. Consistency
4. Margins
5. Geneity
6. Presence of a halo
7. Comment on cervical lymph nodes
8. Radiological risk stratification.

Table 1: Comparison of USS reports between JCUH and UHNT

Echogenecity	UHNT	JCUH
Hypoechoic	13.0%	34.5%
Isoechoic	3.0%	13.8%
Hyperechoic	20.0%	10.3%
Not documented	64.0%	41.4%
Consistency		
Cystic	23.0%	13.3%
Mixed	30.0%	33.3%
Solid	20.0%	0.0%
Not documented	27.0%	53.3%
Margins/Capsule		
Well defined	57.0%	73.3%
Blurred/Irregular/Poorly defined	13.0%	10.0%
Not documented	30.0%	16.7%
Calcification present		
Micro	10.0%	16.7
Macro	3.0%	6.7
Absent	20.0%	6.7
Not documented	67.0%	70%
Halo		
Well defined	3.0%	0.0%
Poorly defined	0.0%	6.7%
Absent	0.0%	0.0%
Not documented	97.0%	93.3%
Geneity		
Homogeneous	0.0%	6.7%
Mixed	0.0%	30.0%
Heterogeneous	17.0%	46.7%
Not documented	83.0%	16.7%
Cervical Lymph nodes		
Normal	43.0%	100.0
Abnormal	7.0%	0.0
Not documented	50.0%	0.0
Risk stratification		
Benign	23.0%	26.7%
Intermediate	34.0%	0.0%
Suspicious/Malignant	23.0%	16.7%
Not documented	20.0%	56.7%

Results:

A total of 60 patients were included (30 at each site). Documentation of positive or negative findings were variable across both sites. Table 1 compares the USS reporting parameters between the two sites. Margins were well documented across both sites in over 60% of USS reports whilst calcification and presence/absence of a halo sign were poorly mentioned. USS reports at UHNT were better at documenting consistency and risk stratification. In contrast USS reports at JCUH were better at documenting geneity and cervical lymph nodes.

Conclusion:

A significant proportion of thyroid USS reports had missing documentation of clinically relevant parameters needed in guiding further management of thyroid nodules. Reporting of both positive and negative findings were highly variable between the two sites. Developing a standardised reporting proforma for thyroid nodules identified at USS may improve both the quality and consistency of reporting across our sites.

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