Best Practice Guidelines for Referral of General Medical Ultrasound Examinations

Approved Jan 2018/Review Date Jan 2020

Best Practice Guidelines for Referral of NOUS Examinations

Locally Adapted by Ultrasound Dept. Radiology, ULHT.

Contents

Introduction	Page 2
Principles	Page 3
Vetting Guidance	Page 3
General Abdominal	Page 4
Renal Tract	Page 8
Small Parts	Page 9
Head and Neck	Page 12
Gynaecology	Page 14
Musculoskeletal	Page 17
Appendices	Page 24

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Introduction

This document is intended to support referrers to Ultrasound (US) and ultrasound providers in the appropriate selection of patients for whom ultrasound would be beneficial in terms of diagnosis and or disease management. Whilst the document is primarily directed at primary care, the guidance is relevant for other referrer groups. It has been written to aid ultrasound providers in justifying that an ultrasound examination is the best test to answer the clinical question posed by the referral. This document has been compiled by a panel of ultrasound experts to support good practice in vetting and justifying referrals for US examinations . Making best use of resources is essential for sound financial management and good patient care.

These are national guidelines published by the British Medical Ultrasound Society (BMUS) & the Royal College of Radiographers, underpinned by evidence from the Royal College of Radiologists. The document has been written with a pragmatic approach to managing referrals based on the panel's expert opinion. This document can be used to assist and underpin any local guidelines that are produced. Reference is made to the evidence based iRefer publication and should be used in conjunction with this http://www.irefer.org.uk/

The NICE guidance (NG12, Suspected Cancer: Recognition and Referral) published in June 2015 has also been considered in the production of this updated publication. In many instances NICE advise urgent direct access CT but if this is unavailable they advise that patients are referred for an urgent ultrasound examination. Local practice should dictate appropriate pathways, following consideration of capacity and demand. The BMUS document was produced with the aim of providing practical advice as to best practice in the acceptance and justification of US referrals.

The rationale behind the incorporation of these into local guidelines is to encourage physicians to supply ultrasound practitioners with high quality relevant requests, as it is well evidenced that referral details can influence diagnostic yield, the number of discrepancies or missed pathologies.

The guidance given below is not exhaustive and is not absolute. The ultrasound department(s) can be contacted directly to discuss specific cases.

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This document has been approved locally by Ultrasound Department Leads and the Radiology Clinical Governance Committee.

Principles

- Imaging requests should include a specific clinical question(s) to answer, and contain sufficient information from the clinical history, physical examination and relevant laboratory investigations to support the suspected diagnosis(es)
- Suspected diagnoses must be clearly stated, not implied by vague, non-specific terms such as “Pain query cause” or “? pathology” etc.
- Although ultrasound is an excellent imaging modality for a wide range of diseases, there are many for which it is not an appropriate first line test (e.g. suspected occult malignancy)
- Given sufficient clinical information, and discussion with Radiologist it may be possible to re-direct ultrasound requests to CT or MR where appropriate.

Vetting Guidance

The following examples of primary care referrals address the more common requests and are not intended to be exhaustive. They are guidance only and there may be exceptions in some cases. The ultrasound practitioner will exercise sound professional, evidenced based, judgement when vetting.

Rejected referrals will be returned to the referring clinicians with a covering letter/email explaining the rationale behind the rejection, this information will also be recorded on the Computerised Radiology Information System. (CRIS) as a record the referral has been returned

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General abdominal

Clinical Details	Comments- Essential Criteria for request	Justified Yes/No
Abnormal/Altered LFTs *This statement alone is insufficient to warrant ultrasound- request will be returned for more clinical detail* *To improve the diagnostic quality of the scan LFT results should be included on the referral*	**Isolated enzyme rises**: ultrasound is generally not indicated A single episode of mild to moderate elevation does not justify an ultrasound scan - **ALT alone**: Single episode Fatty liver (risk factors; obesity, hyperlipidaemia, DM) or Drugs (statins/ OC) US is justified if raised ALT is persistent (3-6 months) despite following weight loss and altered lifestyle guidance, and/or change in medication US is justified in patients with persistently raised ALT (3-6 months) and no other risk factors - **ALP alone**: probably bone NOT liver (adolescent growth, Paget's disease, recent fracture) - **GGT alone**: usually alcohol. Consider prescribed drugs. Fatty liver (risk factors; obesity, TGs, DM) - **Bilirubin alone**: Gilberts syndrome (usually <80mols/L)	No No Yes Yes No No No

Best Practice Guidelines for Referral of NOUS Examinations

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Vague symptoms which do not fit the following criteria but there is clinical concern	**Abnormal/altered LFTs + one or more of the following:** - Patient is symptomatic e.g. pain, jaundice - Two or more episodes of abnormal LFT's in an otherwise asymptomatic patient - A specific diagnosis considered and/or a clinical question Ultrasound scan of the abdomen will be performed to rule out gross pathology but the referral clearly needs to state this is for clinical reassurance (but not patient reassurance only). If you have vague concerns and would like the reassurance a normal scan may provide then this needs to be stated on the request.	Yes Yes
Diabetes - known	US does not have a role in the management of diabetes. Up to 70% of patients with DM have a fatty liver with	No

Best Practice Guidelines for Referral of NOUS Examinations

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	raised ALT. This does not justify a scan	
Jaundice	Request should state whether painless or not. Overt &/or painless jaundice – new onset, cause unknown – requires urgent imaging and referral on the 2ww system	Yes
Pain	Generalised or localised pain as the only symptom is not a justification for US A specific diagnosis considered and/or a clinical question	No Yes
Upper abdominal mass	CT is more appropriate	No
Suspected gallbladder disease	Pain plus consistent history and/or dyspepsia	Yes
Gallbladder polyp	There is little evidence to support the long term monitoring of small (<10mm) gallbladder polyps. Incidental finding of a polyp <10mm in an asymptomatic patient should have a follow up scan in 1 year with 3 caveats. • If patient becomes symptomatic within the year they should be referred for consideration of Cholecystectomy, regardless of size of the polyp • If Polyp has stayed the same after 1 year can be discharged with advice see GP if becomes symptomatic. If the patient does develop RUQ symptoms they should be referred for consideration of Cholecystectomy, regardless of size of the polyp.	Please refer to gallbladder polyp algorithm provided. Appendix I
Bloating/ Abdominal distension (for pelvic / Gynae symptoms	As the only symptom Persistent or frequent occurring over 12 times in one month, in women especially	No Yes

see Gynaecology section)	over 50, the addition of other symptoms and raised Ca 125 Ascites? Usually due to liver or heart failure or malignancy. Likely cause should be indicated on request: - Liver/Cardiac - ?Unknown Malignancy/cancer – CT scan	 Yes No
Altered bowel habit/ Diverticular disease	US does not have a role in the management of IBS or diverticular disease (if bowel cancer is suspected then referral via the 2 week wait system is indicated)	No
Suspected Pancreatic Cancer Presenting with : - Weight loss & diarrhoea or constipation - Nausea / vomiting - Back pain Or - New onset diabetes or unexplained worsening control of diabetes	If there is high clinical concern consider an urgent direct access CT scan If there is reasonable concern but the patient is not acutely unwell then in patients **under 60** ultrasound imaging in the first instance is appropriate. For patients **over 60** with reasonable concern CT imaging is the test of choice	No Yes No
Unexplained, concerning weight loss	Patients require Chest X-Ray and ultrasound abdomen & pelvis	Yes

Best Practice Guidelines for Referral of NOUS Examinations

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Weight loss and anaemia	Patients require colonoscopy, OGD and ultrasound abdomen & pelvis	Yes
Weight loss and chronic reflux	Patients require OGD and ultrasound abdomen	Yes

Renal Tract

Urinary tract Infection	First episode Recurrent (≥ 3 episodes in 12 months) especially in the over 60 yo age group Non-responders to antibiotics. H/O stone or obstruction	No Yes Yes Yes
Hypertension	Routine imaging not indicated. (bi-polar lengths are not affected except in chronic cases) RAS (renal artery screening) no longer offered	No *(MRA by consultant referral only)*
Haematuria Suspected Bladder Cancer/Suspected Renal Cancer	2WW referral required if they are (usually as part of a one stop clinic): • Aged over 45 and over and have unexplained visible haematuria without urinary tract infection • Visible haematuria that persists or recurs after successful treatment of a UTI • Are aged over 60 and have unexplained non-visible haematuria **and** either dysuria or raised white cell count	Yes
? Renal colic	Female < 40	Yes

	Any Male & Females **over 40** with high degree of suspicion of renal calculi – Refer for CT	No

Small parts

Lymphadenopathy	Patients with clinically benign groin, axillary or neck lymphadenopathy do not benefit from US Small nodes in the groin, neck or axilla are commonly palpable. If new and a source of sepsis is evident, US is not required If malignancy is suspected, US +/- FNA or core biopsy is appropriate. Signs of malignancy include: increasing size, fixed mass, rubbery consistency. Appropriate imaging will depend upon the nature of the suspected primary	No No Yes (FNA/Biopsy Consultant Secondary Care Referral only)
Soft Tissue Lump	The majority of soft tissue lumps are benign and if there are classical clinical signs of a benign lump with a corresponding clinical history i.e. that it has not recently increased in size or changed in its clinical features - then US is not routinely required for diagnosis Ganglion or lipomata; - <5cm, soft, mobile, non-tender, with no significant growth over 3 months,	No No

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	Do not routinely require US for diagnosis If findings are equivocal and diagnosis is essential to management eg “wrist mass ?ganglion ?radial artery aneurysm, excision planned” – then US is warranted on a routine basis. Larger lipomata that are planned for excision usually require routine US for confirmation/surgical planning. Significant findings, all or any of the following; - Fixed mass, tender, increasing in size, overlying skin changes should either be scanned on an urgent basis or referred into a soft tissue sarcoma pathway. In cases of classical features of: Dupytren’s, plantar fibromatosis, mobile nodules at the SI joint level and generalized lipomatosis at the nape of the neck, US is not required for diagnosis	Yes Yes Yes No (unless required specifically on secondary care advice)
Scrotal mass	Any patient with a swelling or mass in the body of the testis should be referred urgently	Yes

Best Practice Guidelines for Referral of NOUS Examinations

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Scrotal pain	Acute pain, in the absence of suspected torsion or acute epididymo-orchitis is an appropriate indication for an ultrasound referral. (Suspected torsion requires urgent urological referral which should not be delayed by imaging) Where the clinical diagnosis is unclear US is indicated and will influence management.	Yes
	Uncomplicated epidiymo-orchitis does not require routine US examination. This is reserved for suspected complications eg abscess or when pain and symptoms persist despite antibiotic treatment .	No
	Chronic varicocele ,uncomplicated hydrocele and epididymal cysts do not require routine Ultrasound evaluation. ,if clinical examination is unequivocal in identifying that the mass is extra testicular.	No
	However where there is clinical doubt and if the testicle cannot be palpated separate to the mass (eg large hydrocele) then US is warranted.	Yes
	Ultrasound in chronic testicular pain in the absence of a mass/abnormal examination is generally unhelpful, it may be more prudent to stream these referrals through a	No

	local urological pathway .	
?Hernia	If characteristic history and exam findings, e.g. reducible palpable lump or cough impulse, then US not routinely required (British Hernia society / ASGBI Guideline 2013) Irreducible and/or tender lumps suggest incarcerated hernia and require urgent surgical referral If groin pain present, clinical assessment should consider MSK causes and refer accordingly	No No

Head & Neck

Thyroid nodule	Routine imaging of established thyroid nodules/goitre is not recommended. Routine follow up of benign nodules is not recommended. Ultrasound may be required where there is doubt as to the origin of a cervical mass i.e. is it thyroid in origin or if there is a sudden increase in size of an established thyroid nodule/goitre British Thyroid Association Guidelines 2014, state routine ultrasound of incidental thyroid nodules found on CT/MRI is not required unless there is a strong family	No No Yes Not routinely. If required details of risks must be

	history of thyroid cancer or strong clinical concerns, these must be indicated on the request card. *For Information only :Routine fine needle aspiration (FNA) of benign thyroid nodules is not indicated, FNA is reserved for when equivocal, suspicious or malignant features are detected on US. These referrals are appropriate clinic referrals only via established pathway.* *Use of the BTA guidelines: as to stratification of risk of malignancy based on sonographic features ,is advised . (REF 5&8)* *Clinical features that increase the likelihood of malignancy include: history of irradiation, male sex, age (<20,>70),fixed mass, hard/firm consistency, cervical nodes, change in voice, family history of MEN II (Multiple Endocrine Neoplasia type II) or papillary Ca.*	on referral
Salivary mass	History suggestive of salivary duct obstruction For a suspected salivary tumours, US (+/- FNA/core biopsy) is recommended. The majority of parotid tumours will be benign however US guided FNA or core biopsy is recommended when a mass is detected to exclude malignancy. Therefore if there is a strong suspicion of salivary gland tumour	Yes Yes (FNA/Biopsy Consultant Secondary Care Referral only)

	referral should be made directly through ENT	

Gynaecology

Abnormal PV Bleeding (Pre and peri-menopausal patients)	Need to specify symptoms i.e. investigation of intermenstrual bleeding or menorrhagia or suspicion of fibroids	Yes
IUCD / Mirena Coil	US to assess presence of fibroids prior to placement of Mirena coil US to investigate presence of IUCD when threads are not visible	Yes Yes
Pelvic pain ? cause	US is unlikely to contribute to patient management if pain is the only symptom, in patients <50 In patients >50, the likelihood of pathology is increased, and the request may be accepted, provided a specific clinical question has been posed There is no role for ultrasound in management of suspected pelvic inflammatory disease	No Yes No
Pelvic pain + - Palpable mass - Raised CRP or WCC - Nausea/Vomiting - Menstrual Irregularities	A specific clinical question / differential diagnosis is required The addition of another clinical symptom justifies the request	Yes Yes

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- Dyspareunia >6 wks duration		
Pelvic pain & one or more of the following; - H/O ovarian cyst - H/O PCOS - Severe or sudden pain - ? appendicitis - ? ovarian cyst - R/O or ? anything else	A **specific clinical question** / differential diagnosis is required These do not represent further clinical symptoms, and the request should be referred back. Vague 'notions' of a diagnosis with no real basis, or requests for purposes of reassurance will be rejected pending more information and will only be accepted following discussion	Yes No
Bloating Bloating as the only symptom is not justification for US	A **specific clinical question** / differential diagnosis is required Persistent or frequent occurring (e.g. over 12 times in one month), in women especially over 50. If there is a palpable mass refer on a 2WW pathway Persistent bloating with the addition of other symptoms, such as a palpable mass/ raised Ca 125, is acceptable Intermittent bloating infrequent bloating is not routinely imaged with ultrasound.	Yes Yes Yes No
Follow-up of benign lesions e.g. fibroids, dermoids, cysts	There is no role for US in follow-up or in treatment monitoring unless on advice of secondary care or recommended in the	No

	radiology report If the patient has undergone a clinical change, then re-scan is acceptable	Yes
PMB	Should include LMP (i.e. be post rather than peri-menopausal) and relevant HRT status. Local pathways which include direct referrals into gynaecology under a 2 week wait are most appropriate. Scan with view to progress to hysteroscopy is recommended pathway.	Yes
PCOS	Only useful in secondary care if investigating infertility. Diagnosis of PCOS should be based on: 1.Irregular menses 2.Clinical symptoms and signs of hyperandrogenism such as acne, hirsutism 3.Biochemical evidence of hyperandrogenism with a raised free androgen index (the testosterone is often at the upper limit of normal) 4.Biochemical exclusion of other confounding conditions	No

Musculoskeletal Ultrasound

Many musculoskeletal pathologies are diagnosed successfully by good clinical examination. Incidental pathology is common and may not be the current cause of symptoms – clinical correlation is always required.

Joints – US may see pathology arising from joints on ultrasound but we cannot exclude intra articular pathology. MRI is a more complete examination if symptoms warrant imaging and clinical examination suggests joint pathology. Equally, if there is ligament damage on the external surface of a joint, concurrent damage to internal structures cannot be excluded. If this is the case, a detailed discussion with an MSK Sonographer/Radiologist should take place or an orthopaedic referral made.

Joint OA or fracture – whilst this can often be visualised with ultrasound it is usually an incidental finding of synovitis or a stress fracture – X- ray is still the first line imaging modality

Important Notes:

There should be definite / clear clinical diagnosis / question on the request. US is an excellent diagnostic modality if a specific question is to be answered. For example, requests that will be returned to the referrer include:

- **Knee, foot, ankle pain ? cause**
- **Knee injury ? ACL tear**
- **Back pain ? nerve pain ? thigh or leg**

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Soft tissues		
Tenosynovitis/rupture		Yes
Tendinopathy – specific tendon should be mentioned		Yes
Tendon sheath effusions - specific tendon should be mentioned	US cannot differentiate between infected and non-infected effusions – aspiration may be required	Yes
Calcific tendinopathy - specific tendon should be mentioned		Yes
Foreign body		Yes
Joints		
Synovitis/erosions	Via rheumatology referral only	Yes
Effusion	To confirm or exclude effusion	Yes
Septic arthritis		Yes
Loose bodies		No
Labral pathology		No

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Cartilage pathology Intra articular pathology		No No
In addition in individual areas: **Wrist/Hand**		
Bone erosions	Via rheumatology referral only	Yes
Pulley/sagittal band injury/ruptures		Yes
Thumb/finger collateral ligament injuries		Yes
TFCC (Triangular Fibrocartilage) tear	MRI superior	No
TFCC calcification	Seen on x ray	No
Median nerve? Carpal tunnel Syndrome (CTS)	Indicated to look for carpal tunnel mass only. May detect neuritis however cannot diagnose CTS on ultrasound	Yes
Ulnar nerve compression	To exclude mass causing compression of ulnar nerve where there are specific symptoms to indicate this	Yes

Best Practice Guidelines for Referral of NOUS Examinations

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Elbow		
Distal biceps tendon insertional tear	Small insertional tears may be difficult to exclude	Yes
Ulnar nerve neuropathy/subluxation	To exclude mass at ulnar canal / medial epicondyle and can confirm subluxation	Yes
Median/Radial nerve compression	To exclude external compression (difficult to assess for focal neuritis)	Yes
Shoulder		
Site and size of RC tears		Yes
Post op cuff failure		Yes
LHB dislocation/rupture		Yes
Adhesive capsulitis/Frozen shoulder	Clinical diagnosis (US examination is often unremarkable) US may be required to exclude other pathologies	Only if clinical concern
Acromioclavicular OA/instability	May be used to confirm origin of mass i.e. osteoarthritic joint if clinical concern	No
Sternoclavicular joint disease	Cannot exclude fracture on ultrasound	No
Occult greater tuberosity fracture	MRI	No
GHJ instability	MRI	No

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Labral pathology		No
Ankle/foot		
Erosive arthropathy	Via rheumatology referral only	No
Peroneal tendon Tenosynovitis / subluxation		Yes
Posterior tibial tendinopathy	Clinical examination for tendinopathy generally accurate. US maybe required to exclude underlying tear	Yes
Achilles tendon tendinopathy/tears /calcification		Yes
Retrocalcaneal/pre Achilles bursitis	Anterior/mid lateral ligaments can be seen, difficult to exclude pathology in medial ligaments however patients with potential instability may need referral to a specific orthopaedic pathway for assessment +/- MRI	Yes
Anterior talofibular ligament		No
Calcaneofibular ligament		No
Posterior talofibular ligament		No
Deltoid ligament		No

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Plantar fasciitis	Usually , this is a clinical diagnosis, although it is appreciated that ultrasound can assist in the management of some patients. Sufficient clinical information should be supplied e.g. a clinical question and treatments attempted etc. to ensure these referrals are not rejected	Yes
Morton's neuroma		Yes
Hip		
Effusion/synovitis		Yes
Adductor tear		Yes
Trochanteric pain	Can be used to guide diagnostic/therapeutic injections but often nil seen on initial diagnostic scan. Cannot definitively excluded trochanteric bursitis/trochanteric pain syndrome	Not Routinely required should be a clinical diagnosis
Knee		
Suprapatellar/infrapatellar/pre patellar bursitis		Yes
Patellar tendonopathy/ tear/calcification		Yes
Quadriceps		Yes

tendonopathy/tear/calcification Osteochondritis Baker's cyst		 No Yes

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36

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Best Practice Guidelines for Referral of NOUS Examinations

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Appendix i