Protocol for Direct Audiology Referral to MRI

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1. Background Information

1.1. Summary

It is standard practice in the UK for patients with suspected hearing loss to be directly referred to Audiology departments by their GP. NICE guidance exists to identify clear criteria for onward referral from Audiology to ENT (NICE, 2018).

Patients who present with unilateral or asymmetrical symptoms should be investigated to rule out an acoustic neuroma/ vestibular schwannoma and Magnetic Resonance Imaging (MRI) is the method of choice (British Association of Otorhinolaryngologists Head and Neck Surgeons, 2002). To minimise patient waiting times and to lessen the pressure on busy ENT departments Audiologists are increasingly referring directly for MRI (British Academy of Audiology Service Quality Commission, 2019).

This protocol outlines how and under what conditions Salisbury Audiology Department will refer directly for MRI.

1.2. Documents and departments consulted

In the writing of this protocol discussions were undertaken with Salisbury ENT department and Salisbury Radiology department. Documents consulted were:

- Guidance on Referral for MRI by Audiologists (British Academy of Audiology Service Quality Commission, 2019).
- Guidance for Audiologists: Onward referral of Adults with Hearing Difficulty Directly Referred to Audiology Services (British Academy of Audiology Service Quality Commission, 2016).

- Hearing Loss in Adults: Assessment and Management (NICE, 2018)
- Tinnitus: assessment and Management (Nice, 2020)
- ENT UK Otology guidelines (ENT UK, 2018)

2. Eligible patients

2.1. Audiometric criteria

It was decided that Salisbury Audiology Department would follow the NICE (2018) guidance for referral to MRI. Therefore patients will be suitable candidates for referral if they have a unilateral or asymmetric sensorineural hearing loss with an asymmetry of 15 dB or more at 2 adjacent test frequencies an octave apart.

Following consultation with ENT and radiology, the criteria outlined above was expanded to include patients who have persistent or long lasting non-pulsatile unilateral tinnitus for over 3 months, regardless of their audiometric thresholds or configuration.

Patients with an asymmetrical hearing loss with an overlying conductive component will be referred directly to ENT as will those patients in whom direct referral to MRI is contraindicated.

2.2. Contraindications

Patients with a qualifying asymmetrical sensorineural hearing loss will not be referred for MRI and instead directed to ENT if:

- The patient is pregnant
- There is a possibility the patient has metal in their eye (patient has worked with welding/lathe equipment or had a penetrating eye injury)
- The patient has undergone previous brain surgery including insertion of a foreign body (i.e an aneurysm clip, shunt or cochlear implant)
- The patient has a metallic implant, foreign body, stent or heart valve (patients with replacement heart valves can be discussed with the radiographers to check if they are MRI compatible)
- The patient is severely claustrophobic
- The patient has problems lying flat.

3. Process

3.1. Identification

Identification of patients with an asymmetrical result will predominantly arise in a diagnostic Audiology appointment when audiometry has been performed in accordance with the recommended British Society of Audiology (BSA) procedure (BSA, 2018). This audiometry will highlight an asymmetrical or unilateral sensorineural hearing loss where there is a difference between the ears of 15dB or more at two adjacent test frequencies an octave apart. Bone conduction should be performed where appropriate.

This appointment will usually include some form of history taking, in accordance with British Academy of Audiology (BAA) onward referral guidelines (BAA, 2016) where the clinician will determine if and for how long the patient has been suffering with tinnitus. This will also include the nature of the tinnitus, whether it is pulsatile, persistent or intermittent.

3.2. Staff roles

It is noted that some members of staff performing audiometry are not qualified Audiologists. These Assistant Audiologists will not make a decision to refer for MRI unilaterally but will discuss with a senior member of staff (Band 6 or above) before taking any action.

3.3. Patient checklist

When a potential candidate for direct MRI referral is identified, the Audiologist will discuss this with them and complete a checklist to ensure that there are not any contraindications to the procedure. See Appendix B for a copy of the patient checklist.

3.4. Sense check

Following completion of the patient checklist this will be given to the Head of Audiology who will then double check that this referral is appropriate (i.e. meets audiological criteria, checklist filled out correctly, patient has not already had MRI). Advice from ENT will be sought as required. In the absence of the Head of Audiology, the Deputy Head will carry out this role.

3.5. MRI referral

An MRI will then be requested electronically using the information in the patient checklist. All referrals will be under the Head of Department’s name and the clinical

information will include “Audiology referral for MRI IAM”. The patient’s GP will be informed of this action by letter.

3.6. Patients who decline MRI

Some patients may opt not to be referred for MRI. As long as the patient has been fully informed about the potential risks of doing so and this refusal is documented appropriately they may not need onward referral to ENT. These cases will be discussed individually with the named ENT doctor.

3.7. Results

Results of the MRI will be communicated back to the Head of Audiology.

4. Reporting

4.1. Likely incidence

Approximately 2% of referrals will result in a “positive” finding (Abbas et al., 2018; Vanderveldea and Connora, 2009; Wong and Capper, 2012). There will also inevitably be incidental findings which will require appropriate action. All positive and incidental findings will be discussed with the named ENT doctor.

4.2. ENT liaison

There will be a named ENT doctor (Dr Helen Adams) for Audiology to discuss all positive and incidental findings with. This doctor will be responsible for arranging urgent ENT appointments as required and for advising on any other medical action needed.

4.3. Reporting back to patients

All patients who have a negative scan will receive a standard letter informing them of the findings. It is expected that a proportion of patients’ MRI results will show ‘age related changes’ and these patients will receive a letter advising them of these findings and asking them to discuss this further with their GP. Patients with an acoustic neuroma or other important finding will have an urgent appointment arranged to discuss the findings with an ENT doctor.

5. Review

As with any new protocol the implementation of Audiology led MRI referral will be monitored closely and a review date will be set to ensure the process is safe, effective and efficient. To improve the efficiency of this protocol it is hoped that an audit plan can

be put in place to assess the quality of referrals and appropriateness of decision making and recording.

6. References

Abbas, Y., Smith, G. and Trinidale, A. (2018) Audiologist-led screening of acoustic neuromas in patients with asymmetrical sensorineural hearing loss and/or unilateral tinnitus: our experience in 1126 patients. *Journal of Laryngology and Otolaryngology.* **132** (9) pp.786-789.

British Academy of Audiology Service Quality Commission (2016) *Guidance for Audiologists: Onward referral of Adults with Hearing Difficulty Directly Referred to Audiology Services.*

British Academy of Audiology Service Quality Commission (2019) *Guidance on Referral for MRI by Audiologists.*

British Association of Otorhinolaryngologists Head and Neck Surgeons (2002) *Clinical Effectiveness Guidelines, Acoustic Neuroma*: Document 5 (Spring edition).

British Society of Audiology (2018) *Recommended Procedure: Pure-tone air-conduction and bone conduction threshold audiometry with and without masking.*

National Institute for Health and Care Excellence (2018) *Hearing Loss in Adults: Assessment and Management (NG98)*

Vanderveldea, C. and Connora S.E.J. (2009). Diagnostic yield of MRI for audiovestibular dysfunction using contemporary referral criteria: correlation with presenting symptoms and impact on clinical management. *Clinical Radiology.* **64** pp.156-163.

Wong, B.Y.W. and Capper R. (2012) Incidence of vestibular schwannoma and incidental findings on the magnetic resonance imaging and computed tomography scans of patients from a direct referral audiology clinic. *The Journal of Laryngology & Otology*. **126 pp.**658–662.

7. Appendices

A: Referral Checklist for Staff to Complete

B: Standard Letter Advising of Negative Result

C: Small Vessel Disease Letter

Appendix A – Referral Checklist for Staff to Complete

<u>Checklist for Audiology Patients requiring MRI</u>

PLEASE COMPLETE AND PUT IN MRI TRAY WITH A COPY OF THE AUDIOGRAM

Date of checklist completion: ______________________

Is there an unilateral or asymmetric sensorineural hearing loss with an asymmetry of 15 dB or more at 2 adjacent test frequencies an octave apart OR does the patient have persistent unilateral non-pulsatile tinnitus for a period greater than 3 months prior to this appointment?

YES	NO
Continue with checklist	MRI not required

Patient details:

NAME : ____

D.O.B. : ___________________________

HOSPITAL NO. : ____________________

ADDRESS : ____

____

Is the patient pregnant or is there a possibility the patient is pregnant?

YES NO

Does the patient have any of the following?

- Heart pacemaker
- Internal defibrillator
- Pacing wires or intra-cranial aneurysm clips
- Brain stimulator
- Baclofen pump
- Cochlear Implant

YES NO

If YES please give details____

____

Does the patient have metallic foreign bodies in or around their eyes?

YES NO

Has the patient had surgery in the last 12 weeks?

YES NO

Does the patient have an *on-going* risk of penetrating eye injury? (i.e. patient is working with welding/lathe equipment)

YES NO

Does the patient have a *past* risk of penetrating eye injury? (i.e. patient has worked with welding/lathe equipment)

YES NO

Is the patient claustrophobic?

YES NO

Does the patient have problems lying flat?

YES NO

Is the patient able to sign a safety form?

YES NO

PLEASE NOW PUT IN MRI TRAY WITH A COPY OF THE AUDIOGRAM

Appendix B - Standard Letter Advising of Negative Result

Dear XXX

I am writing to you following your recent MRI scan to investigate your hearing loss and/or tinnitus.

I am pleased to report that this did not show any reason as to why there is a difference between your ears.

We do not need to arrange any further investigations at this point but I recommend that you continue to have regular checks of your hearing (approximately every three years is sensible).

I have copied in your GP for their information.

Yours sincerely

Appendix C – Small Vessel Disease Letter

Dear XXX

I am writing to you following your recent MRI scan to investigate your hearing loss.

I am pleased to report that this showed normal nerves of hearing and balance and normal inner ears. As part of the scan we also look at the brain. I am pleased to say that there are no other "lumps or bumps" and generally, all is normal.

However, as we get older there is often a little bit of thickening of the arteries throughout our body and this can be seen on the MRI scan. The most common cause of this is the ageing process, but it can be made worse if one has high blood pressure or cholesterol.

We commonly find some mild changes due to some thickening of the arteries in many people as they get older. However, when we find this we just to tend to let your GP know about it, because if you do have high blood pressure or cholesterol, it is important that this is controlled.

I will write to your GP with the results. It is probably worth you going to see your GP just to discuss whether your blood pressure or cholesterol are within the normal range and whether any further treatment is needed.

Yours sincerely