Agreed AGIP Guidelines for Oesophageal High Resolution Manometry:

I do not foresee any individuals, particularly those in research or clinical practices specializing in oesophagology deciding to leave behind high-resolution manometry (HRM) to return to conventional manometry – Professor Pandolfino (2010) Gastroenterology Hepatology, October; 6(10): p632–634

Patient Selection and Preparation in advance of procedure:

- Patients should ideally undergo an endoscopy prior to referral for oesophageal manometry. All patients with dysphagia should have an endoscopy with appropriate biopsies to rule out carcinoma and eosinophilic oesophagitis as the cause of symptoms and to assess for structural abnormalities such as oesophageal diverticulum, pharyngeal pouch or varices which increase the risks of the procedure (Barium radiology done with video recording by an experienced GI radiologist can give complementary information and may detect abnormalities (e.g. motility disorders, Shatzki rings) not appreciated by endoscopy)
- Patients should be informed of the date of their tests well in advance, to allow any medication which will affect the test results to be discontinued (as per local patient information leaflet)
- A light meal is allowed up to 4 hours before the test. Patients are not usually starved overnight (to prevent problems with diabetes, and changes in LOS due to MMC). If patient is suspected of having achalasia then longer fasting is advisable for patient's comfort

Patient Preparation on attendance:

- Check patient details prior to starting the procedure
- Take a history from the patient. Assess and document any relevant symptoms, confirm and document that all relevant medication (if necessary) has been stopped and also what medication they are usually taking
- Explain in detail the procedure to the patient to allow full co-operation during the test. Written patient consent must be obtained prior to the start of the procedure. Inform the patient that they can withdraw consent at any time during the procedure
- Patients must be given an opportunity to have any questions or concerns they may have answered to their satisfaction before the procedure starts
- Check for any anaesthetic sensitivity or if alcohol is inappropriate for religious reasons

Equipment Preparation:

- It is important to ensure that the oesophageal catheter manufacturer has approved the chosen disinfectant as being compatible for use in decontaminating the catheter
- As per the 'BSG guidelines for Decontamination of Equipment for Gastrointestinal Endoscopy' (February 2008) before the start of each procedure the oesophageal catheter (if not disposable) should undergo a full cleaning cycle, unless last used and decontaminated within the preceding 3 hours. This should be undertaken by trained, competent staff. Relevant details should be entered into an appropriate (catheter) cleaning log
- Calibrate and zero catheter as per manufactures guidelines

Performance of the Procedure:

- The member of staff performing the procedure must be either fully trained and accredited in this procedure or supervised by a fully trained and accredited practitioner
- Staff should wear appropriate protective clothing
- Explain each step of procedure to the patient to ensure compliance

- Apply local anaesthesia to nose (if required) and allow time to take effect
- Apply lubrication gel to the tip of the catheter to improve patient comfort, being careful not to cover the sensors
- Insert the catheter into the nares and gently advance the catheter through the nasal cavity to the back of the throat (approx 15cm). On the report remember to mention the position of patient during the procedure (i.e. supine, semi supine or sitting)
- Ask the patient to tilt their head slightly down towards their chest and start taking very small continuous sips of water through a straw (to aid catheter and help avoid retching/vomiting)
- Gradually intubate catheter until the visual display indicates the correct positioning of the catheter; ideally with both the UOS and LOS within view (occasionally not possible on tall patients) and secure catheter in place with hypoallergenic tape
- Allow adequate time for patient and equipment to stabilise before proceeding (minimum 2 minutes, patient dependant). The test requires the patient to be as settled as possible without continually swallowing, coughing etc, allow longer if needed
- Start recording and document on the trace the depth of the catheter by referring to the markings on the catheter
- Take a landmark assessment of LOS and UOS resting pressures prior to test swallows
- Give the patient 5ml of room temperature water from a syringe. Mark (with event marker) precisely when the patient swallows, ask the patient not to swallow again, talk, cough, retch, move or belch and wait for 30 seconds from the onset of the last swallow before administering the next 5ml bolus. Repeat this process to ensure 10 individual swallows are assessed
- Give the patient 5x2mls of water with 2 second intervals. The fifth swallow should be the last, and no swallowing talking, coughing, retching, moving or belching should take place within the 30 seconds following the fifth swallow. Mark (with event marker) precisely when patient swallows. There should be normal inhibition of peristalsis during the rapid swallows followed by an effective clearance contraction after the multiple swallows, demonstrating normal neuromuscular function. If no effective clearance contraction post multiple rapid swallows is evident then repeat the 5x2mls of water at 2 second intervals to confirm. If no effective clearance contraction is evident after the multiple swallow, this would suggest hypomotility and compromised neuromuscular function
- The patient should then be given a series of solid (bread/bread roll) swallows in order to assess the response of the oesophagus when the system is put under increased load. Ask the patient to take a normal bite, chew until they are ready to swallow and swallow once only. Mark (with event marker) precisely when the patient swallows, repeat this at least 5 times, (ask the patient not to swallow again, talk, cough, retch, move or belch in-between the swallows), then.....
- Immediately allow the patient to free swallow 200mls water (within a maximum of 30seconds) post solid swallows. Solid swallows (bread, test meal) are now considered extremely important as many patients have no explanation for their symptoms with just water
- If required a test meal may be given at this point (as per local guidelines)
- End recording as per manufacturer's protocol
- Ask patient to blow air through the nose into a tissue and gently but quickly remove the catheter
- Hold catheter still for a few seconds, ensuring sensors are not touching anything to allow for the thermal compensation process (if required)
- Disconnect catheter from equipment/ save recording

Post Procedure:

- If using a reusable HRM catheter (solid state or water perfused) then a trained, competent member of staff needs to immediately clean the catheter as per manufacture's recommendations and enter relevant details into an appropriate (catheter) cleaning log. If a single use water perfused HRM catheter has been used then place it straight into the appropriate coloured bag for disposal
- The patient may go home or progress onto a 24hour pH (+/-impedance) study as required
- Analysis of the recording and subsequent reporting should be in line with the most recent "Chicago Classification" (currently 2012)
- Document in the report if symptoms occurred during the study especially if the symptom was associated with any dysmotility. It is also important to document if symptoms did not correspond with any dysmotility, if that is the case

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