LRI Emergency Department

Standard Operating Procedure for:

Potential Magnet Ingestion or Insertion in Adults

Staff relevant to:	ED medical and nursing staff,
Approval date:	16/02/2024 Policy and Guideline Committee
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Background and scope

Background:

- This guidance has been produced in response to the NPSA alert issued on the 9th of May 2021
- https://www.england.nhs.uk/wp-content/uploads/2021/05/NaPSA-Alert-Magnets-FINAL-v5.pdf
- Neodymium magnets (also known as NdFeB, NIB, Neo magnet or Super Strong Rare Earth Magnets) have become easy to purchase.
- The ingestion of a single rare earth magnet is unlikely to cause significant harm, however, if multiple magnets are ingested, or if a magnet is swallowed along with a metal object, significant injury can occur.

Scope:

 This Guidance only covers any patient with suspected magnet ingestion who is 18 years or older.

Magnet Ingestion or Insertion

Key Points

Ingestion of super strong magnets can kill even if the adults presents asymptomatically. There may be **no** history of swallowing the object at all if patient is cognitively impaired

Symptomatic

- Haematemesis
- Airway obstruction or drooling
- Dysphagia or inability to eat
- Choking or acute difficulty breathing



- Alert Senior Doctor (ST4+)
- Contact ITU and Surgical Registrar/Consultant
- CXR/AXR (if ingestion)
- (Consider CT if unknown duration or >3 days history)
- NBM

If Magnet Present

- Insert 2 large IV/IO lines; and obtain FBC, U&E and Clotting screen
- Cross-match 2 units blood-ring transfusion services to say urgent.
- · Consider Tranexamic acid (TXA) if bleeding

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Magnet in Oesophagus

Surgical team to coordinate with ENT, Gastroenterology and Acute Medicine teams regarding urgent endoscopy and further admission

Magnet below Diaphragm

 Surgical team to plan urgent removal

Or

 Surgical Team to discuss with on call Gastroenterology team as appropriate

Asymptomatic

- · No respiratory concerns,
- Eating & drinking ok,
- No haematemesis.

Keep NBM.

- Arrange for CXR (if ingestion)
- (write "to include neck and upper abdomen" on NerveCentre)
- Obtain Radiology report regarding location of magnet in bowel

In oesophagus or battery co-ingested

- Keep NBM
- Alert Senior Doctor(ST4+)
- Insert I/V access and obtain group & Save, FBC, U&E and Clotting screen
- Prompt referral to LRI surgical team for assessment.
- LRI Surgical registrar to contact relevant ENT or Gastroenterology team member as appropriate
- Hourly observations

Below Diaphragm in Stomach

- Repeat X-Ray needed in 6-12 hours after time of ingestion.
- Patient may go home after Medical Registrar or Consultant review and return to GPAU for repeat X Rays

Beyond Stomach

- Repeat X-Ray needed in 6-12 hours after time of ingestion.
- Patient may go home after Surgical Registrar or Consultant review and return to LRI SAU for repeat X rays

If no magnet seen confirm not in neck or upper abdomen, discuss with senior and follow relevant GI bleeding or Foreign Body protocol if relevant

Magnet Ingestion or Insertion

Super Strong magnets imaging notes

- A lateral AXR should be requested if a single magnet/suspected magnet is identified on the AP AXR
- All patients who are being discharged with rare earth magnet ingestion require followup imaging after 6-12 hours, repeated earlier imaging is not indicated.
- Follow up abdominal X-ray should be requested (only repeat CXR if magnets seen in the chest on the first image). It is essential that the abdominal radiographs are always performed in the same position (lying down, ideally prone).
- Interpretation of the abdominal x-ray and the finding of progression of the rare earth magnet through the gastrointestinal tract should be formally confirmed by a radiologist.
- Follow-up AXRs should continue to be performed until it can be demonstrated (and confirmed by a radiologist) that the magnet has passed through the stomach and serial X-rays (at least 6-12hrs apart) show that it is progressing through the small bowel or beyond. Failure of the magnet to progress through the gastrointestinal tract (the magnet having not moved from the last demonstrated position on AXR irrespective of location in GI tract after a period of 6-12hrs and confirmed by a radiologist) is an indication for review with the surgical team.

Surgical Management

A symptomatic patient who has ingested a magnet should be treated as a surgical emergency.

The following are of **no** benefit:

- 1. Ipecac administration (ineffective).
- 2. Blind magnet removal with a balloon catheter or a magnet affixed to a nasogastric tube (can't determine extent of injury).
- 3. Blood or urine concentrations of magnet ingredients (unnecessary).
- 4. Chelation (unnecessary).
- 5. Laxatives (ineffective) or polyethylene glycol electrolyte solution (unproven effectiveness and unknown if solution enhances electrolysis).

Magnet Ingestion or Insertion

Discharge Advice

Patients or their carers should be advised to bring their back <u>immediately</u> for medical review if the patient develops:

- Breathing difficulty
- · Features of intestinal obstruction
- (e.g persistent vomiting, Distended tender abdomen)
- · Blood stained vomiting
- Abdominal pain
- · Any patient or carer concern about change in behaviour/refusing fluids or food
- These symptoms may develop after a magnet has been removed or passed and should warrant review as well.

Research and Audit Priorities

Correct Management of symptomatic versus asymptomatic ingestions

Time to removal of magent (symptomatic ingestion or insertion)

[The incidence of insertion or ingestion may be very low so this will not be a regular audit]

References	
Web-based resources	
RCEM_BPC_Ingestion_of_Super_Strong_Magnets_in_Children_170521.pdf	
https://www.england.nhs.uk/wp-content/uploads/2021/05/NaPSA-Alert-Magnets-FINAL-v5.pdf	