National Patient Safety Alert

The Royal College of Emergency Medicine

NHS

Urgent assessment/treatment following ingestion of 'super strong' magnets

Date of issue:	19-May-21	Reference no:	NatPSA/2021/002/NHSPS

For action by: All organisations providing urgent/emergency care to adults or children; including providers with Emergency Departments, Minor Injury Units, or Urgent Treatment Centres, and all Ambulance trusts, General Practices, and Mental Health services.

This is a safety critical and complex National Patient Safety Alert. Implementation should be co-ordinated by an executive lead (or equivalent role in organisations without executive boards). In acute organisations, the executive lead should be supported by clinical leaders in emergency medicine, radiology, and surgery.

Explanation of identified safety issue:

Small powerful magnets, also known as neodymium or 'super strong' rare-earth magnets, are sold as toys, decorative items, and fake piercings and are becoming increasingly popular. Unlike traditional magnets, these 'super strong' magnets are small in volume but powerful in magnetism and easily swallowed.[1]

If more than one 'super strong' magnet is swallowed separately, or a 'super strong' magnet is swallowed with a metallic object, then they can be strongly attracted together from different parts of the intestines. This compression of bowel tissue can cause necrosis and perforation of the intestines and/or blood vessels within hours.[1,2] Therefore urgent assessment and treatment is vital, including an antero-posterior (front) and lateral (side-on) abdominal x-ray and surgical review. The risks of damage apply to children and adults of any size.

A review of the National Reporting and Learning System (NRLS) over a recent three-and-a-half-year period identified 24 incidents where patients experienced a delay in assessment or treatment. Incident reports suggested:

- Missed diagnosis in a young child, where magnet ingestion had not been witnessed.
- Confusion between discharge to 'watch and wait', that may be appropriate for other swallowed items, and the urgent referral for surgical review required for 'super strong' magnets.
- Reluctance of radiology staff to conduct lateral (side-on) x-ray, in addition to abdominal x-ray.
- Delay in surgical review and intervention.

Insight from clinicians highlighted that there were few local procedures regarding the management pathway for patients following magnet ingestion.

A Best Practice Guideline on 'Ingestion of Super Strong Magnets in Children' was recently developed by the Royal College of Emergency Medicine (RCEM), with the British Association of Paediatric Surgeons, the Royal College of Radiologists, and the Society of Radiographers.[3]

Actions required

Actions to be completed by 19/08/2021

All organisations that provide urgent clinical assessment:

1. Review and revise protocols to ensure that patients who have ingested (or are suspected of ingesting) 'super strong' magnets are referred to an Emergency Department as a medical emergency.

All organisations with Emergency Departments:

2. Review and revise protocols for foreign body ingestion to ensure they align with the RCEM 'Best Practice Guideline',[3] including:

   a. The ingestion (or suspicion of ingestion) of more than one 'super strong' magnet, or a 'super strong' magnet with a metallic object, requires:
      - time critical assessment and action
      - antero-posterior (AP) and lateral abdominal radiographs
      - repeat x-rays every 6-12 hours in patients who have not had surgical intervention
      - urgent review of x-rays

   b. Urgent surgical review, for all symptomatic patients.

3. Review systems for access to radiologist/ reporting radiographer, to ensure they fully meet the requirements of the RCEM 'Best Practice Guideline'.[3]

4. Develop written safety netting information for adults, children, and their families, who are discharged without the magnets having been removed – see Note A.

For further detail, resources and supporting materials see: https://www.england.nhs.uk/2021/05/urgent-assessment-treatment-following-ingestion-of-super-strong-magnets/

Failure to take the actions required under this National Patient Safety Alert may lead to CQC taking regulatory action

Additional information:

Notes

A. An example of written safety netting information is given in the RCEM guideline – https://www.rcem.ac.uk/docs/RCEM%20Guidance/RCEM_BPC_Ingestion_of_Super_Strong_Magnets_in_Children_170521.pdf

Patient safety incident data

A search of the NRLS for incidents reported as occurring between 01 April 2017 and 30 September 2020, uploaded to the NRLS by 10 November 2020, was carried out using a combination of keywords (ref: 5352); this search found 65 incidents describing a child under 18 years who had apparently swallowed 'super strong' magnets. A similar search approach (ref: PSI600) identified 26 incidents where adults had apparently swallowed 'super strong' magnets.

Of these, 24 incidents described some aspect of delay in assessment or treatment and were reported as causing moderate, low harm or no harm; although it was difficult to separate the impact of any delays from the direct harm caused by swallowing the magnet(s). However, any delay has potential to increase the risk of significant harm. Issues identified were:

- initial advice for observations only, referral to the Emergency Department (ED) an hour later following symptoms (in a non-acute organisation)
- discharge from ED after swallowing several magnets with other metal objects, prescribed laxatives
- discharge for repeat x-ray the next day, urgent surgery delayed, and more extensive intervention required
- discharge without surgical review or treatment, urgent surgery a week later
- delay in transfer to tertiary hospital for treatment (time critical transfer)
- confusion in ED between discharge and safety netting or transfer to tertiary hospital for urgent surgery
- missed diagnosis in one ED, diagnosed in another ED the next day (unknown if the infant had swallowed magnets)
- rejection by a radiographer of a request to conduct a lateral view x-ray on a child following an abdominal x-ray.

References / Resources

1) Hussain SZ, Bousvaros A, Gilger M, Mamula P, Gupta S, Kramer R, Noel RA. Management of ingested magnets in children. JPGN 2012; 55(3): 239–242
2) Han Y, Youn JK, Oh C, Lee S, Seo JM, Kim HY. Ingestion of multiple magnets in children. J Pediatr Surg. 2020; 55(10):2201-2205.
3) Royal College of Emergency Medicine. Best Practice Guideline: Ingestion of Super Strong Magnets in Children. May 2021 https://www.rcem.ac.uk/docs/RCEM%20Guidance/RCEM_BPC_Ingestion_of_Super_Strong_Magnets_in_Children_170521.pdf
4) Public Health campaigns:
   - Child Accident Prevention Trust: https://www.capt.org.uk/news/magnetic-toys
   - Office for Product Safety and Standards: https://www.gov.uk/government/news/opss-launches-magnet-safety-campaign

Stakeholder engagement

- Best Practice Guideline Development Group – members representing Royal College of Emergency Medicine (RCEM) with the British Association of Paediatric Surgeons (BAPS), the Royal College of Radiologists (RCR) and the Society of Radiographers.
- Royal College of Paediatrics and Child Health (RCPCH)
- National Patient Safety Response Advisory Panel (for a list of members and organisations represented on the panel see https://www.england.nhs.uk/patient-safety/patient-safety-alerts/)

Advice for Central Alerting System (CAS) officers and risk managers

This is a safety critical and complex National Patient Safety Alert. In response to CHT/2019/001 your organisation should have developed new processes to ensure appropriate oversight and co-ordination of all National Patient Safety Alerts. CAS officers should send this Alert to the executive lead nominated in their new process to coordinate implementation of safety critical and complex National Patient Safety Alerts, copying in the leads identified on page 1.