

Handling public health and media concerns over magnetic putty

A case study by the UK National Poisons Information Service

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Objective

In January 2018 a magnetic putty toy was found to contain seven times the permitted EU limit for arsenic. We review exposures reported to the UK National Poisons Information Service (NPIS) following media publicity and describe how the Service managed these public concerns.

Methods

Enquiries to the NPIS from 1 January 2018 to 1 July 2018 were correlated with media reports driving public interest in magnetic putty.

Results

During the study period, there were 174 enquiries from doctors and other health care professionals concerning 184 patients. Enquiry frequency peaked on 20 February 2018 (n=57), coinciding with multiple national news stories and social media posts (Fig. 1).

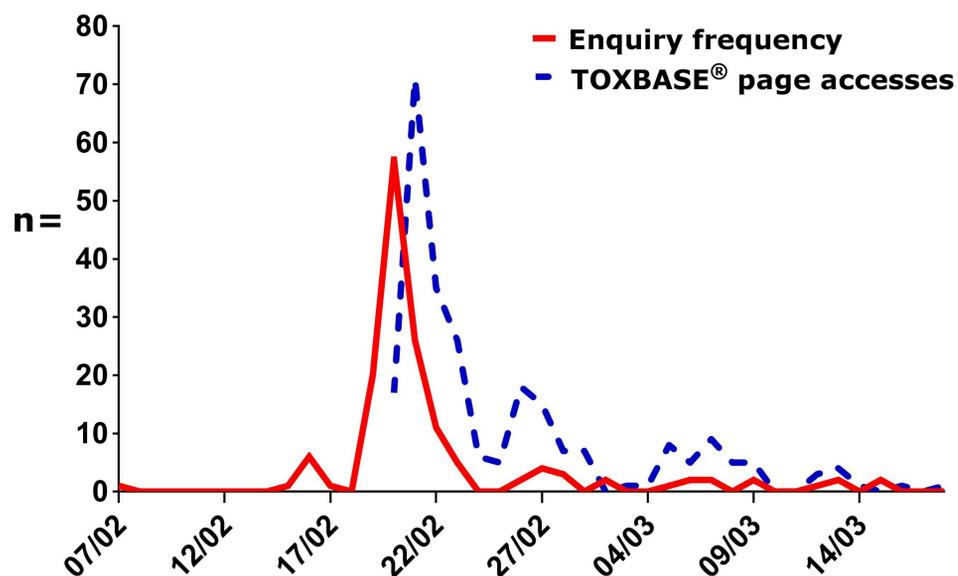


Figure 1. TOXBASE® page accesses and enquiry frequency by date

Exposures were most commonly reported in patients aged 6-10 years (53.3%). Exposures were reported following skin contact alone (n=173) or ingestion (n=11).

The majority of patients were asymptomatic (n=142, 77.2%). The remaining 42 patients (22.8%) reported minor symptoms (Fig. 2) and were the subjects of focussed follow-up. On 20 February 2018 an alert was placed on TOXBASE®, the NPIS online information database, with advice to measure spot urine arsenic concentrations in symptomatic patients.

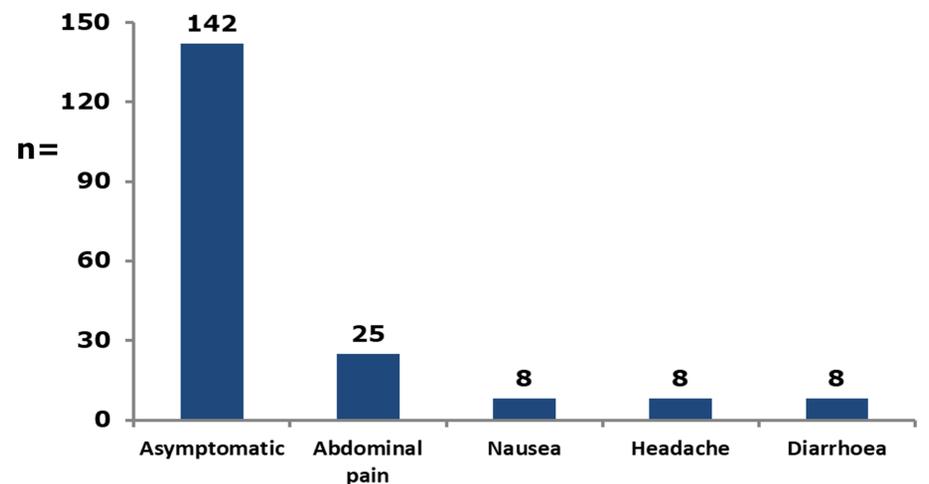


Figure 2. Number of patients exhibiting the most commonly reported symptoms

Urine arsenic concentrations were obtained in 9 of the 42 symptomatic patients and ranged from 20 to 430 nmol/mmol [median 181 nmol/mmol; IQR 45-298 nmol/mmol] (upper limit of total arsenic for an *unexposed* population 15 nmol/mmol creatinine). To mitigate for non-toxic dietary arsenobetaine, repeat urine samples were recommended after abstention from seafood, but results were available in only 4 cases (Fig. 3). In at least one of these (repeat urine arsenic 49 nmol/mmol), the patient had continued to eat breaded fish sticks despite advice.

Patient	Urine arsenic concentration (nmol/mmol creatinine)	
	First sample	Post-recommendation of seafood abstention
1	181	8
2	293	19
3	39	49
4	51	57

Figure 3. Urine arsenic concentrations before and after recommendation of seafood abstention by the NPIS

No arsenic was detected in the single magnetic putty sample used by the child with the highest recorded urine arsenic concentration (430 nmol/mmol). Although no repeat urine sample was received from this child, it is probable that the arsenic concentration reflected dietary intake.

Conclusions

Poisons information services need to respond rapidly to events of this kind and interpret often limited toxicological data accurately. Dietary arsenic exposure may result in alarmingly high total urine arsenic concentrations and cause unnecessary health concerns.