The Internet, Adolescent Males, and Homemade Blowgun Darts: A Recipe for Foreign Body Aspiration

We describe our experience with blowgun dart aspiration via an illustrative case series and review the resources available to teach children how to construct these objects. A 15-year-old boy presented with cough, wheeze, and eventually admitted to aspiration of a homemade blowgun dart. This instance heightened the awareness of our experience with blowgun dart aspiration as 3 cases presented within a 3-month period. Patients uniformly presented with cough and reported aspiration, and wheezing was noted in 2 of the 3. Although all ultimately admitted their behavior, 2 were initially reluctant to admit aspirating the blowgun dart. Radiographic findings of a needle-shaped metallic airway foreign body were consistent in all patients. Each admitted to finding instructions for blowgun dart construction on the Internet. Emergent rigid bronchoscopy with blowgun dart removal resulted in symptom resolution in all without complication. This represents the largest series of blowgun dart aspiration to date. During deep inhalation, when preparing to propel a blowgun dart, the vocal folds maximally abduct, leading to increased risk for aspiration. Twenty websites were identified providing instructions for the construction of homemade blowgun darts. With the accessibility of the Internet and number of instructional websites, this clinical entity may become more common in the future. Unfortunately, only a few of the websites provide any safety warnings. Certainly, prompt treatment can result in good outcomes; however, serious potential complications, including death, could occur especially given the hesitance our patients showed in divulging the truth of the inciting event. Pediatrics 2013;132:e519–e521
Foreign body aspiration is a relatively common occurrence in the pediatric population with the majority of these events taking place in the first 4 years of life and involving peanuts or other organic materials. In the adolescent subpopulation, however, the aspirated object is more likely a metallic foreign body. Previous small series have advocated for increased education of this demographic to decrease such occurrences, but our institution has noted a recent increased incidence of adolescent metallic foreign body aspiration, especially in males. While multiple authors have reported their series of turban or scarf pin aspiration in adolescent females, the number of reported blowgun dart aspirations in adolescent males has remained small. These aspiration events pose a diagnostic challenge as this subset of patients may be reluctant to divulge the details leading to presentation. Also, blowgun dart aspiration poses a therapeutic challenge as these foreign bodies may become lodged in the airway mucosa, potentially requiring thoracotomy for removal. Here we present the largest series of blowgun dart aspiration in the literature to date, discussing the demographics, presenting symptoms, method of treatment, and outcomes. Institutional review board approval was obtained for this study.

**CASE PRESENTATION**

A 15-year-old otherwise healthy boy presented to the emergency department with a 3-hour history of cough. He reported a sudden onset of cough that began while playing in his room with his siblings. Anterior-posterior and lateral radiographs revealed a linear radiopaque foreign body in the left main bronchus. Upon further questioning, the patient reported constructing a homemade blowgun using instructions found on the Internet. Rather than exhaling to propel the dart, the patient inadvertently inhaled initially, aspirating the blowgun dart. The patient was taken to the operating room for emergent bronchoscopy in which the metallic foreign body was encountered in the left bronchus (Fig 1A). Upon removal, thick cotton strands were noted attached to the distal end of the metallic foreign body as a part of the typical construction (Fig 1B). The foreign body was inspected, and there was no evidence of any missing portions of the cotton strands. After removal, a second bronchoscopy showed no evidence of retained foreign bodies. The patient was subsequently discharged without complication.

Within the subsequent 3 months, 2 additional male adolescents (aged 14 and 15) presented with nearly identical clinical pictures, admitting to identifying instructions for the construction of blowgun darts using household materials on the Internet. These patients also underwent bronchoscopic removal of the dart without complication.

**DISCUSSION**

Blowgun dart aspiration, although relatively uncommon, can have serious
consequences. Although the patients discussed here had uniformly good outcomes with endoscopic removal alone, previous reports of pin aspirations have identified the need for thoracotomy for distally located pins.\textsuperscript{1,10} As in the case presented here, blowgun dart aspiration may present in a delayed manner because of patient reluctance to provide complete history. Certainly, a high index of suspicion for aspiration is necessary in the adolescent male population presenting with vague respiratory complaints. A low threshold for chest radiography in this population can assist in diagnosis (Fig 2A and 2B). Blowgun darts, propelled through a tube after maximal inspiratory effort, when vocal cords are fully abducted, can be easily aspirated if a child fails to keep the device out of his mouth until immediately before exhalation. This case report highlights an opportunity for education of not only the adolescent population but also the pediatric medical community. With the accessibility of the Internet and large number of instructional websites available, this clinical entity may continue to become more common in the future.

Unfortunately, we identified at least 20 websites with instructions on creating these and only a minority provides adequate safety warnings. As such, preventative measures emphasizing education targeted to adolescents regarding the risks of foreign body aspiration may help to decrease these risks. Certainly, a high degree of suspicion among clinicians and prompt treatment can result in good outcomes. Foreign body aspiration must be considered in the differential diagnosis of cough in pediatric patients because life-threatening complications can occur.

REFERENCES

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Pediatrics 2013;132;e519; originally published online July 22, 2013; DOI: 10.1542/peds.2012-3340

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