

Foreign Body-Related Extremity Trauma in Children: A Single-Center Experience

Abstract

The extremity foreign body in a child has propensity of getting missed or mistaken diagnosis. We report our experience of extremity foreign body trauma in order to increase awareness of this disease entity. The retrospective series of 24 retained foreign bodies was based on a 10-year chart review of emergency data (ICD code Z18). Patients with both upper and lower limb affections were included. Patients with ocular, otolaryngeal, tracheobronchial, gastrointestinal, and axial foreign bodies were excluded from the study. Male predominance (M:F = 20:4), young patient age (mean 6.8 years), variable lag period for consultation (range 3 h–8 years), and majority lower limb affection (58%; foot [7; 29%] and knee [5; 20.8%]) were some characteristics of extremity foreign bodies trauma. The foreign bodies reported were metallic needle (7; 29%), rubber band (3; 12.5%), pellets (3; 12.5%), bangle glass (2; 8%), glass pieces (2; 8%) “dhaga,” wooden twig, wooden thorn, ceramic earthen pot pieces, stapler pin, broomstick, and cracker piece in one case each (1; 4%). Postremoval, the wound healing was uneventful in all patients. Foreign body-related extremity trauma in children is a rare event. It has its own set of characteristics and differential diagnosis. Familiarity with the regional practices and customs is must to establish the circumstances/nature of the foreign body injury. The foreign body should preferably be removed in a well-equipped setting.

Keywords: Child, extremities, foreign body, pediatric

MeSH terms: Pediatrics, foreign bodies, extremities

Anil Agarwal

Department of Paediatric Orthopaedics, Chacha Nehru Bal Chikitsalaya, New Delhi, India

Introduction

Respiratory, otolaryngeal, and gastrointestinal foreign bodies are quite common in childhood and are frequently reported from the emergency department.¹ The extremity foreign body in a child is an uncommon entity with even large series reporting low incidence.¹ As such, the foreign body in child's limb has propensity of getting missed or mistaken diagnosis.²⁻⁵

The foreign body extremity trauma may be acute or chronic. The child may be injured by needle ends, glass pieces, thorns, and pellets inflicting an acute trauma.⁶ This is in general easily remembered and brought to the attention of clinician early. The child complains of pain and loss of function according to location of the foreign body. Sometimes, the manifestation is cellulitis or acute inflammation. Contrarily, the wrist thread, rubber bands, wooden pieces etc., progress as chronic trauma, often forgotten, to manifest later on as an abscess, discharging sinus, nonhealing ulcer, at times years later.⁷

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

Furthermore, the types of foreign body vary from one geographic region to another; have distinct clinical signs and method of removal as well. We report our experience of extremity foreign body trauma in pediatric age group in order to increase awareness of this disease entity. The article also details the various regional aspects of the pathology and its diagnosis.

Materials and Methods

Our tertiary care pediatric center (caters to age groups ≤12 years) is located in suburb of a low-income country. The retrospective series is based on a 10-year chart review (2007–2016) of pediatric orthopedic emergency data with the diagnosis of retained foreign body (ICD code Z18). Patients with both upper and lower limb affections were included for review. Patients with ocular, otolaryngeal, tracheobronchial, gastrointestinal, and axial foreign bodies were excluded from the study. The data were tabulated [Table 1] and analyzed.

Results

The chart review revealed 24 retained foreign bodies in the extremities of

How to cite this article: Agarwal A. Foreign body-related extremity trauma in children: A single-center experience. Indian J Orthop 2018;52:481-8.

Address for correspondence:

Dr. Anil Agarwal,
4/103, East End Apartments,
Mayur Vihar Phase 1 Extension,
New Delhi - 110 096, India.
E-mail: anilrachna@gmail.com

Access this article online

Website: www.ijonline.com

DOI:
10.4103/ortho.IJOrtho_311_17

Quick Response Code:



Table 1: Clinical details of patients

S.No	Age of the child (years)	Sex	Body region	Presentation	Foreign body	Duration of symptoms	Remarks
1	6	Male	Left knee	Pain knee	Metallic needle	2 days	Removed
2	3	Female	Right wrist	Discharging sinus, circumferential scar	Rubber band	3 months	Removed
3	3	Male	Right forearm	Nonhealing wound, semicircular scar	“Dhaga”	2 months	Removed by parents, brought for confirmation; healed after antibiotic course
4	3	Male	Left shoulder	Asymptomatic	Airgun pellet	1 month	Brought for opinion; not intervened
5	10	Male	Right knee	Pain knee	Metallic needle	1 day	Removed
6	6	Male	Right heel	Pain heel	Metallic needle	1 day	Removed
7	7	Male	Right forefoot	Pain 4 th -5 th metatarsal head	Glass	2 days	Removed
8	6	Male	Right midfoot	Pain lateral foot	Bangle glass	6 h	Removed
9	9	Male	Right forefoot	Pain 1 st metatarsal head	Glass	1 day	Removed by parents, brought for confirmation; not intervened
10	6	Male	Right heel	Pain heel	Metallic needle	1 day	Removed
11	10	Male	Left knee	Discharging sinus	Wooden twig	2 months	Operated twice elsewhere; removed
12	3	Male	Right hand	Grip weak, palpable foreign bodies	Multiple pellets	5 months	Removed
13	9	Male	Right elbow	Stiff, scarred, disorganized elbow joint, no pain	Multiple pellets	3 years	Brought for opinion; not intervened
14	6	Male	Right leg	Discharging sinus form operative site	Stapler pin	2 months	Removed
15	4	Female	Left midfoot	Pain; thread end visible	Metallic needle	3 h	Removed
16	2	Male	Right wrist	Circumferential scar, rubber end seen protruding through the scar	Rubber band	2 months	Removed
17	12	Male	Right knee	Pain knee	Ceramic earthen pot pieces	2 months	Arthroscopic removal
18	10	Male	Right hand	Cellulitis, edema	Wooden thorn	3 days	Explored twice under local anesthesia elsewhere; removed
19	12	Male	Right Achilles tendon	Pain during walking	Metallic needle	3 days	Removed
20	7	Female	Left hand	Hypertrophic scar, periosteal reaction seen in third metacarpal in plain radiographs	Bangle glass	3 months	Removed
21	12	Male	Left forearm	Abscess; previously asymptomatic	Broomstick piece	8 years	Removed
22	3	Male	Left knee	Pain knee	Metallic needle	2 days	Removed
23	4	Female	Right wrist	Discharging sinus, circumferential scar	Rubber band	6 months	Parent reported removal of one rubber band; additional rubber band removed
24	7	Male	Right thigh	Abscess; previously asymptomatic	Cracker plastic piece	5 months	Removed

children. The males far exceed the number of female patients (M:F = 20:4). The average age was 6.8 years (range 3–12 years). The lag period in reporting to our hospital for medical consultation varied widely (range 3 h–8 years). The presentation was acute (within hours-days) in nine (37.5%) patients.

In two patients, the foreign body was completely removed by parents (patients 3 and 9). Two children with pellet injuries were brought for the second opinion. One child with shoulder affection was asymptomatic (patient 4),

but the other child had a painless, stiff, and disorganized elbow joint, with a scar following the blast (patient 13). In both patients, only conservative management was offered to the children. Two patients had previous interventions under local anesthesia elsewhere, yet these attempts were unsuccessful (patients 11 and 18). As a result, these two children were too frightened even for outpatient local examination. One of the foreign bodies was located in knee region (patient 11) and other in hand (patient 18). In one other patient, the parents allegedly removed one rubber

band, but the second rubber band was still *in situ* and subsequently removed at our institute (patient 23).

The lower extremity was involved in 14 patients and upper extremity in 10 patients. Body regions such as foot (7; 29%), hand and wrist (6; 25%), and knee (5; 20.8%) were the most affected sites in this cohort. The clinical presentation was regional pain in 11 patients. These were patients with shorter history and a metallic, glass/ceramic foreign body. Nonmetallic objects such as broomstick, thorns, wooden pieces [Figure 1], rubber band, “dhaga,” and cracker piece were more frequently associated with chronic inflammatory symptoms such as abscess and discharging sinus. The four patients with rubber band/“dhaga” presented with characteristic circumferential scar and/or discharging sinus over the wrist and forearm region [Table 1]. The duration of symptoms in these patients usually extended several months. One patient with wrist rubber band had associated ulnar nerve palsy (patient 2).

In three patients, the foreign body had obvious clinical telltale signs of its presence – palpable pellets in hand

[Figure 2], protruding thread in foot [Figure 3], and rubber band in wrist (patients 12, 15, and 16) [Figure 4]. The metallic needles, stapler pin, pellets, glass [Figure 5], ceramic foreign bodies, and cracker piece [Figure 6] were radioopaque and visible in plain radiographs (16; 66.7%). In two patients with rubber band, “scalloping” and periosteal reaction in the forearm bone was seen in plain radiographs as well (patients 2 and 23). One patient with glass bangle embedded in the hand had periosteal reaction in the third metacarpal as well along the foreign body (patient 20) [Figure 5]. In two patients (patients 3 and 9), in which the foreign body was already removed by parents, the findings were confirmed by plain radiographs and ultrasonography to exclude any retained piece of foreign body. The patients with circumferential scar over wrist were further investigated with plain radiographs, ultrasound, and magnetic resonance imaging (MRI). Although the nonmetallic foreign bodies were provisionally diagnosed on ultrasound in (patients 2, 11, 18, and 23), the precise imaging of object was often blurred because of concomitant edema, fibrosis, and other



Figure 1: (a) Clinical photograph showing discharging sinus (b) X-ray of distal thigh with knee joint anteroposterior and lateral views showing no bony changes (c) Extracted wooden twig. (d) Magnetic resonance imaging of knee joint: T2W images are particularly helpful in these cases with nonmetallic foreign bodies

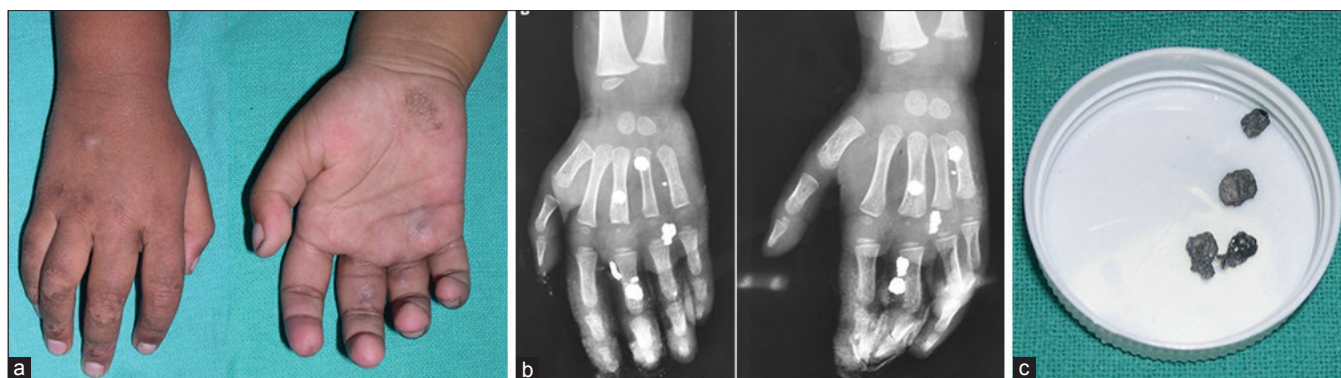


Figure 2: (a) Clinical photograph showing palpable pellets in the right hand of a 3-year-old child. The child suffered from weak grip (b) Plain radiographs of hand anteroposterior and oblique views showing pellets (c) Extracted pellets

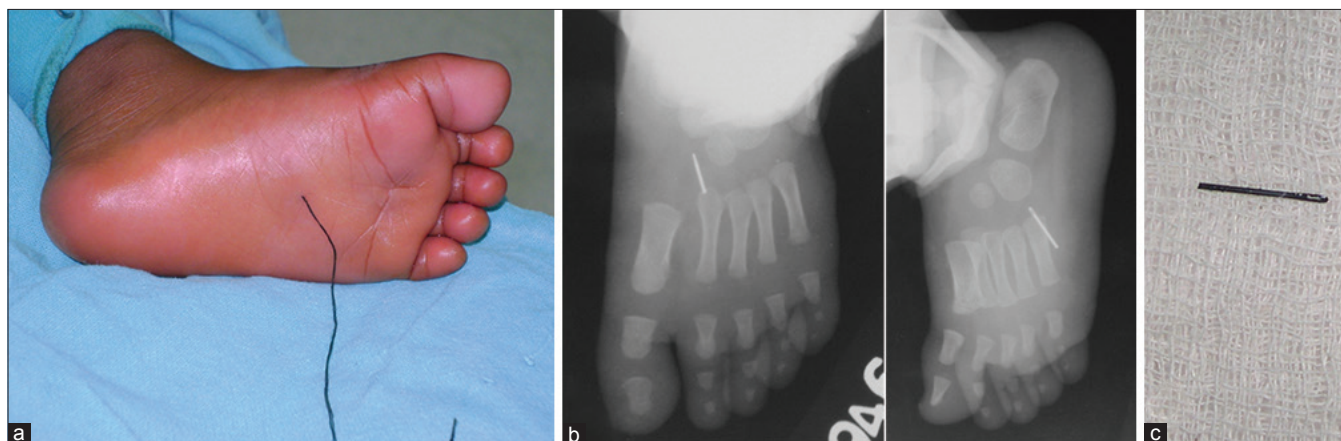


Figure 3: (a) Clinical photograph showing the most common metallic foreign body-metallic sewing needle. In this particular case, the thread was the telltale sign. (b) Plain radiographs of foot anteroposterior and oblique views showing metallic foreign body - sewing needle. (c) Extracted needle

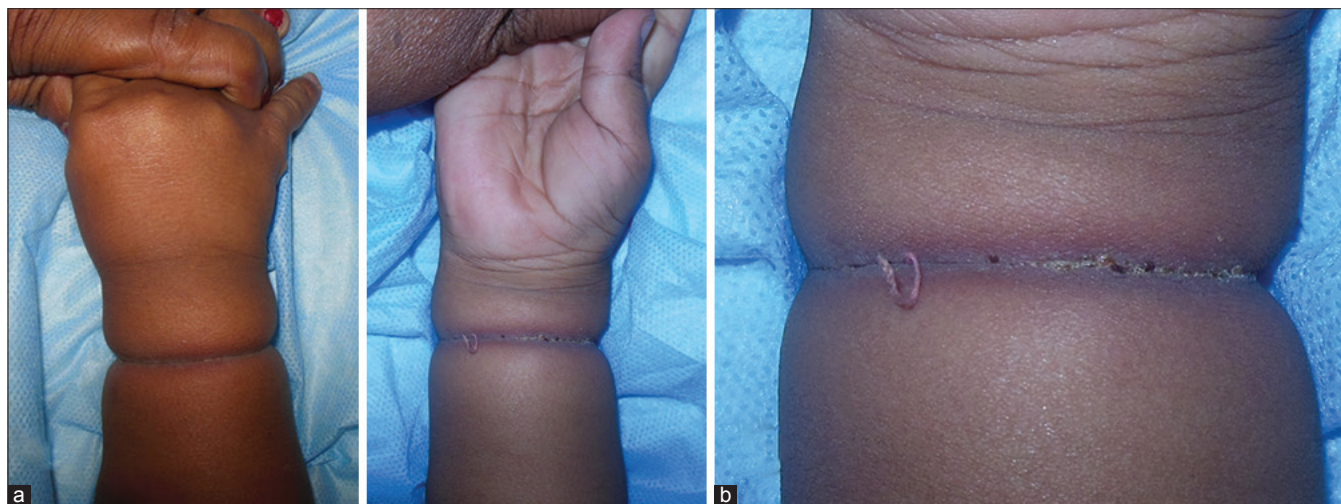


Figure 4: (a) Clinical photograph showing characteristic circumferential scar over wrist region usually indicates the forgotten "dhaga" or rubber band (b) In this case, part of rubber band was seen emerging from the wound clinching the diagnosis

inflammation. In such cases, MRI, better defined the size and localization of the object [Figure 1]. In one patient, the presence of broomstick was an incidental finding during the exploration and evacuation of an abscess in the forearm. On subsequent questioning, no history was forthcoming from the parents (patient 21).

The foreign bodies reported were metallic needle (7; 29%), rubber band (3; 12.5%), pellets (3; 12.5%), bangle glass (2; 8%), glass pieces (2; 8%) "dhaga," wooden twig, wooden thorn, ceramic earthen pot pieces, stapler pin, broomstick, and cracker piece in one case each (1; 4%). We removed the foreign bodies in 20 patients at our center. One ceramic piece



Figure 5: (a) Clinical photograph showing another common foreign body seen in Indian region – glass bangle. (b) Plain radiographs of hand anteroposterior view showing the glass which is usually opaque. Concomitant periosteal reaction of 3rd metacarpal is also obvious. (c) Extracted foreign body

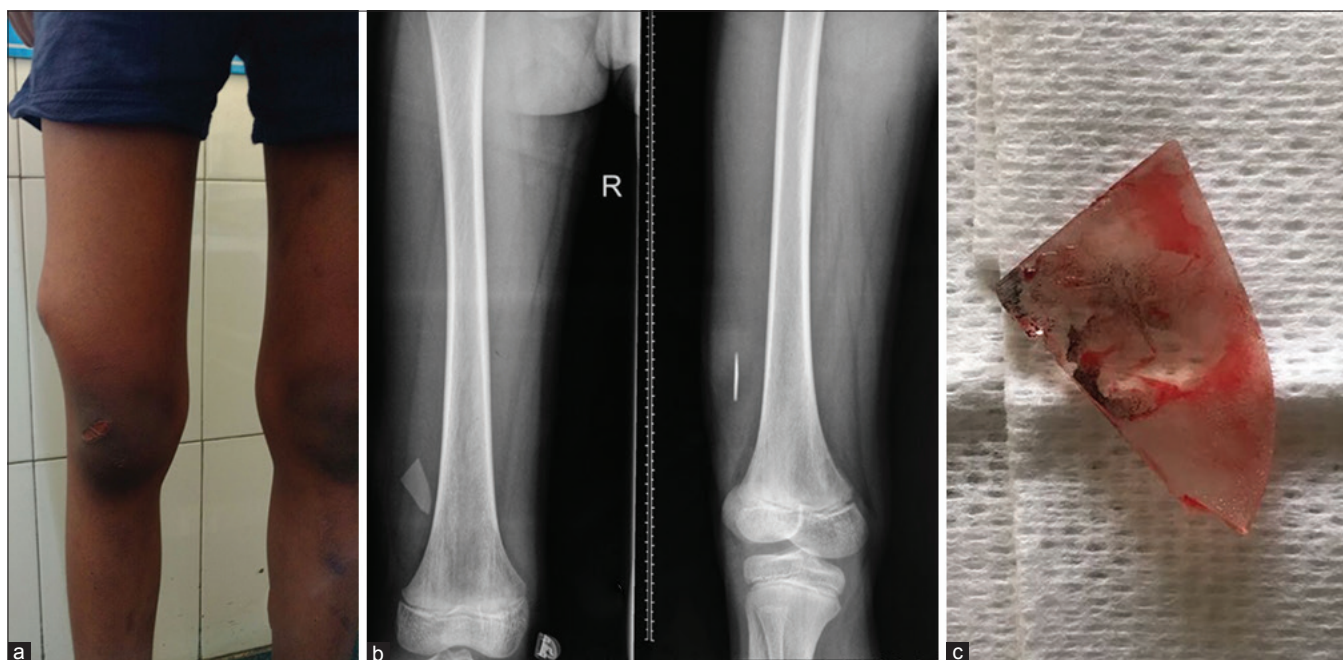


Figure 6: (a) Clinical photograph showing the extremity trauma due to an uncommon foreign body – fire cracker plastic projector. (b) Plain radiographs of thigh with knee joint anteroposterior and oblique views were diagnostic of the plastic material which was opaque. (c) Extracted foreign body

lodged in the knee joint was removed arthroscopically. Post removal, the wound healing was uneventful in all patients.

Discussion

Incidence

The extremity foreign bodies in the pediatric age group were an uncommon entity at our tertiary care organization.

A series of 24 patients over 10 years just makes approximately 2 patients per year. A South African study reported a much higher share of 8.8% extremity foreign bodies out of a total of 8149 foreign body-related pediatric trauma collected over 19 years.¹ The exact incidence of foreign body-related extremity trauma in children at other Indian centers is not available in the literature, but the data are found scattered in multiple case reports.^{4,5,7-13}

As noted from Table 1, there was a distinct male predominance (83%) in the series probably indicating a societal bias in seeking medical care. The lower limbs (58%) were more frequently involved than the upper limb.

Presentation

The history in our patients varied widely (range 3 h–8 years) and in some patients forgotten foreign body was revealed only by retrospective direct questioning after removal of the foreign body. There can be long delays between the initial events and final diagnosis as the child often cannot recall/express the events accurately or the events are frequently forgotten (e.g., dhaga, rubber band, thorn, cracker piece). The incidents may have been treated as blunt injuries and treated as such. The symptoms due to foreign body may subside and remain silent for days/months. Sometimes, the manifestation is even delayed by several years. Previous reports have also highlighted long periods of forgetfulness and disguise presentations associated with foreign bodies.^{5,7,14} Some patients gave history of self-trial/attempt at removal at other centers/incomplete removal of foreign body (patients 11, 18, and 23). Others, unsure of their attempt at foreign body removal, presented for confirmation of its removal (patients 3 and 9). Sometimes, it was just a further opinion for a foreign body, parents were already aware of (patients 4 and 13) this foreign body.

The foreign body pathology has masqueraded several other differential diagnosis, namely, septic arthritis, tuberculosis, necrotizing fasciitis, Brodie's abscess, nonhealing ulcer, etc.²⁻⁵ The symptomatology in our series similarly varied from being asymptomatic to acute presentation with inflammatory signs, for example, abscess, cellulitis, and discharging sinus. In general, the metallic object, for example, needle evoked less inflammation compared to nonmetallic foreign bodies, for example, thread, rubber band, wood, and cracker piece. The foreign bodies coupled with high velocity trauma often had musculoskeletal sequel of the injury, for example, stiff elbow in gunshot injury (patient 23).

Type of foreign bodies

We encountered a multitude of extremity foreign bodies, namely, metallic needle (30%), rubber band, pellets, bangle glass, glass pieces, “dhaga,” wooden twig, wooden thorn, ceramic earthen pot pieces, stapler pin, broomstick, and cracker plastic piece. Clearly, foreign body-related pediatric trauma was dictated by regional practices and customs. The barefoot walking and kneeling habits of our population was responsible for high number of lower limb cases (58%). Sewing needle is a common household item and was the most frequent encountered foreign body. The “dhaga” syndrome is related to old Indian tradition of tying the sacred colored thread “Moli” before any religious occasion and ritual prayers.⁵ The self-removal of

thread is considered inauspicious and therefore it remains on the child's wrist for long time and often forgotten. The constriction of unyielding thread gradually cuts through the soft tissues, tendons, nerves, and even reaches bone. The rapid healing potential of child's tissue covers the dermis and the thread gets completely buried underneath.^{5,9,10} The only evidence of this foreign body is the circumferential linear scar over the child's wrist occasionally associated with discharging sinus [Figure 4]. Another similar foreign body is rubber band which is also a child's play object. The glass pricks mainly resulted from sharp pieces of broken glass bangles which are also a popular Indian feminine adornment [Figure 5]. A peculiar foreign body was cracker plastic piece [Figure 6]. “Deepawali” is very popular Indian festival. Fireworks and cracker bursting are extremely common during this festival and the child got hurt in the thigh from the cracker projectory (patient 24). The foreign body later manifested as abscess. In patients with suburban background, wooden and thorn pricks were common [Figure 1].

Sometimes, unusual foreign bodies have been reported from pediatric extremities (e.g., growth hormone needle, insulin pump infusion set needles, human teeth, animal spur).¹⁵⁻¹⁸ In our series also, thread, rubber band, stapler pin, ceramic pieces, and cracker plastic piece were uncommon objects.

Diagnosis

The diagnosis of an extremity foreign body was largely based on reliable history and high index of clinical suspicion. Careful assessment for retained foreign bodies is also necessary. In one child, the attached thread hanging out was the key to the needle [Figure 3]. In “dhaga” syndrome, the circumferential wrist/forearm scar was characteristic [Figure 4]. As a caution, the hypertrophied scar present in the pierced region may not always contain the foreign body. It may be just the fibrosis or cut end of soft tissues. There is plethora of literature on imaging modalities for detection of foreign bodies.¹⁹⁻²³ In our experience, for metallic/opaque foreign bodies, the most reliable investigation is still plain radiography with minimum 2 orthogonal views. A better delineation can be obtained by computed tomography scan, if needed. However, metal artifacts may be a problem. For nonmetallic objects, ultrasound and MRI are particularly useful. It is advisable to obtain the appropriate imaging before venturing into foreign body exploration as proper localization of extent and size of foreign body greatly helps surgical decision-making including the surgical approach. Sometimes, the foreign body is detected first time only on advanced imaging [Figure 1].

A disturbing phenomenon for foreign bodies seen in children is that it sometimes indicates child abuse or high-velocity trauma.²⁴ Lukefahr *et al.* reported the case of a 13-month-old child repeatedly abused by sewing needles

in the feet and perineum. At other times, the child is hurt in war conflicts or accidentally by missiles/pellets.^{6,25} The child then suffers long term sequel of inflicting injury and retained foreign body. An American study examined 244 children with gunshot wounds, 107 (44%) still had retained foreign bodies, 24 (22%) experienced long term complications related to retained bullets/foreign bodies, and 14 (13%) required removal.⁶ In our series also, the child with gunshot injury at elbow had disorganized stiff elbow with scarring (patient 13). Sometimes, missed foreign bodies can be a reason for malpractice litigation against emergency medicine clinicians.²⁶

Removal of foreign body

The indications for removal of any foreign body are neurovascular insult, infection, cosmetic disfigurement, functional impairment, acute/chronic pain, or patient's demand.²⁷ The decision-making of foreign body removal should however include the following considerations as well –availability of adequate infrastructure, imaging, assistance and expertise, depth of foreign body embedding, compromise of the integrity of nearby neurovascular or other vital structures during the extraction procedure, poor localization, and cosmetic deformity related to the process of removal.²⁷

No single technique was best for the removal of soft-tissue foreign bodies. Following localization, an adequate preparation in the form of proper anesthesia, bloodless field, proper illumination, fine instruments, and competent assistance was required. Image intensifier standby for metallic/opaque foreign bodies was an asset. We always found a thorough lavage of the postsurgical wound extremely useful as it reduced or eliminated particulate matter and residual dirt coupled to the foreign body.²⁸ The most difficult cases were those in whom a half-hearted mini-incision attempt with probably a struggling child under local anesthesia has displaced the foreign body to new/deeper location instead of the original entry point. These attempts added further trauma; frightened the child and need to be condemned. There are several reports of migration of foreign body from original site of lodgment.²⁹ Therefore, one should be cautious enough of mistaking the entry point of foreign body to its lodging site. Sometimes use of ultrasound intraoperatively is useful for localization of foreign body.³⁰

One intraarticular foreign body was removed arthroscopically (patient 17). We had no experience with recently described ultrasound guided hydrodissection technique.²² The airgun pellet in axillary region (patient 4) and several smaller sized metallic debris in scarred elbow (patient 13) were not intervened. There were no complications/long term sequel post removal except in one rubber band case (patient 2).

Needless to say, besides pain management and antibiotic cover, child's immunization status should also be taken into

consideration. The child should be kept under followup and advised to return promptly for reevaluation if symptoms of pain or infection are observed.

Conclusions

Foreign body related extremity trauma in children is a rare event and its awareness is important to the emergency clinician. The extremity foreign body in pediatric age group has its own set of characteristics and differential diagnosis. The treating clinician must also be familiar with the regional practices and customs to establish the circumstances/nature of the foreign body injury. The presentation in most cases is early however; in some cases, it can be delayed. The foreign body should preferably be removed in a well-equipped setting.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Timmers M, Snoek KG, Gregori D, Felix JF, van Dijk M, van As SA, *et al.* Foreign bodies in a pediatric emergency department in South Africa. *Pediatr Emerg Care* 2012;28:1348-52.
2. Clarke JD, McCaffrey DD. Thorn injury mimicking a septic arthritis of the knee. *Ulster Med J* 2007;76:164-5.
3. Kandel L, Friedman A, Chaimski G, Howard C, Mann G, Lowe J, *et al.* Foreign-body synovitis mimicking septic arthritis of the knee. *Arthroscopy* 2001;17:993-6.
4. Agarwal S, Akhtar MN, Barih J. Brodie's abscess of the cuboid in a pediatric male. *J Foot Ankle Surg* 2012;51:258-61.
5. Arora A, Agarwal A. Dhaga syndrome: A previously undescribed entity. *J Bone Joint Surg Br* 2004;86:282-4.
6. Mazotas IG, Hamilton NA, McCubbins MA, Keller MS. The long-term outcome of retained foreign bodies in pediatric gunshot wounds. *J Trauma Nurs* 2012;19:240-5.
7. Gulati D, Agarwal A. Wooden foreign body in the forearm – Presentation after eight years. *Ulus Travma Acil Cerrahi Derg* 2010;16:373-5.
8. Sreekanth R, Khanapur RI, Thomas BP. The elastic band (Dhaga) syndrome: Physicians and surgeons be aware. *J Hand Surg Am* 2014;39:810-1.
9. Agarwal A, Kant KS, Verma I. The rubber band syndrome: The forgotten rubber band in the wrist. *Hand Surg* 2013;18:407-10.
10. Aggarwal AN, Kini SG, Arora A, Singh AP, Gupta S, Gulati D, *et al.* Rubber band syndrome – High accuracy of clinical diagnosis. *J Pediatr Orthop* 2010;30:e1-4.

11. Kumar P, Kumar B, Singh K. A constriction ring of the thigh secondary to a rubber band. *Plast Reconstr Surg* 1995;95:209-10.
12. Shastri N, Pham T. Thorn injury osteomyelitis. *J Emerg Med* 2016;50:e93-5.
13. Vidyadhara S, Rao SK. Thorn prick osteomyelitis of the foot in barefoot walkers: A report of four cases. *J Orthop Surg (Hong Kong)* 2006;14:222-4.
14. Yanay O, Vaughan DJ, Diab M, Brownstein D, Brogan TV. Retained wooden foreign body in a child's thigh complicated by severe necrotizing fasciitis: A case report and discussion of imaging modalities for early diagnosis. *Pediatr Emerg Care* 2001;17:354-5.
15. Kim SH, Huh K, Jee YS, Park MJ. Breakage of growth hormone needle in subcutaneous tissue. *J Spec Pediatr Nurs* 2011;16:162-5.
16. Pogorelič Z, Biočić M, Bekavac J. An unusual foreign body in the foot: Traumatic implantation of a human tooth. *J Foot Ankle Surg* 2011;50:225-6.
17. Plager P, Murati MA, Moran A, Sunni M. Two case reports of retained steel insulin pump infusion set needles. *Pediatr Diabetes* 2016;17:160-3.
18. Cooler JO, Kleiman MB, West K, Grosfeld J. Retained spur following a rooster attack. *Pediatrics* 1992;90:106-8.
19. Kurtulmuş T, Sağlam N, Saka G, Imam M, Akpınar F. Tips and tricks in the diagnostic workup and the removal of foreign bodies in extremities. *Acta Orthop Traumatol Turc* 2013;47:387-92.
20. Shiels WE 2nd, Babcock DS, Wilson JL, Burch RA. Localization and guided removal of soft-tissue foreign bodies with sonography. *AJR Am J Roentgenol* 1990;155:1277-81.
21. Nwawka OK, Kabutey NK, Locke CM, Castro-Aragon I, Kim D. Ultrasound-guided needle localization to aid foreign body removal in pediatric patients. *J Foot Ankle Surg* 2014;53:67-70.
22. Park HJ, Lee SM, Lee SY, Son ES, Chung EC, Rho MH, *et al.* Ultrasound-guided percutaneous removal of wooden foreign bodies in the extremities with hydro-dissection technique. *Korean J Radiol* 2015;16:1326-31.
23. Kornreich L, Katz K, Horev G, Zeharia A, Mukamel M. Preoperative localization of a foreign body by magnetic resonance imaging. *Eur J Radiol* 1998;26:309-11.
24. Lukefahr JL, Angel CA, Hendrick EP, Torn SW. Child abuse by percutaneous insertion of sewing needles. *Clin Pediatr (Phila)* 2001;40:461-3.
25. Mushtaque M, Mir MF, Bhat M, Parray FQ, Khanday SA, Dar RA, *et al.* Pellet gunfire injuries among agitated mobs in Kashmir. *Ulus Travma Acil Cerrahi Derg* 2012;18:255-9.
26. Pfaff JA, Moore GP. Reducing risk in emergency department wound management. *Emerg Med Clin North Am* 2007;25:189-201.
27. Lammers RL, Magill T. Detection and management of foreign bodies in soft tissue. *Emerg Med Clin North Am* 1992;10:767-81.
28. Stevenson TR, Thacker JG, Rodeheaver GT, Bacchetta C, Edgerton MT, Edlich RF, *et al.* Cleansing the traumatic wound by high pressure syringe irrigation. *JACEP* 1976;5:17-21.
29. Vargas B, Wildhaber B, La Scala G. Late migration of a foreign body in the foot 5 years after initial trauma. *Pediatr Emerg Care* 2011;27:535-6.
30. Tantray MD, Rather A, Manaan Q, Andleeb I, Mohammad M, Gull Y, *et al.* Role of ultrasound in detection of radiolucent foreign bodies in extremities. *Strategies Trauma Limb Reconstr* 2018; doi: 10.1007/s11751-018-0308-z [Epub ahead of print]