Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jcot

Case Report

Canine tooth in hand – A rare entity

B.T. Ranganatha MS, DNB^{a,*}, K.M. Pawan Kumar DNB^b^a Specialist/Assistant Professor, Department of Orthopaedics, ESIC MC PGIMS and Model Hospital, Rajajinagar, Bangalore 560010, India^b Senior Resident, Department of Orthopaedics, ESIC MC PGIMS and Model Hospital, Rajajinagar, Bangalore 560010, India

ARTICLE INFO

Article history:

Received 14 April 2014

Accepted 19 May 2014

Available online 15 June 2014

Keywords:

Foreign body

Canine tooth

Hand

ABSTRACT

The hand plays an important role in day to day activities and is more prone for accidental injuries. Injuries to the hand are frequently associated with foreign body penetration. Many a times the foreign body is not detected at the initial visit and can later present with other complications. We present a case of canine tooth presenting as a retained foreign body in the hand following a dog bite. The article stresses the importance of looking for foreign bodies in penetrating hand injuries, even in wounds that seem to be minor in nature.

Copyright © 2014, Delhi Orthopaedic Association. All rights reserved.

1. Introduction

The upper limbs are more prone for accidental injuries in humans and injury of hands by foreign bodies are quite commonly encountered.¹ Wood, glass and metallic slivers are by far the commonest foreign bodies found in the hand, however, a variety of foreign bodies, ranging from radiopaque to radiolucent objects, like needles, pencil lead, thorns and bones have been found.² The delay in removal of foreign bodies ranges from 1 day to 20 years.

2. Case report

A 30-year-old male patient presented to the outpatient department of our hospital with gnawing pain and swelling in his left hand since 2 months. A scar measuring 1 × 1 cm was present at the summit of the swelling, which was tender. The

scar was formed subsequent to the healing of the injury caused due to dog bite. Patient had taken rabies prophylaxis and wound care from a general practitioner, immediately following the dog bite. The patient was subjected to a routine radiography (Fig. 1).

A comma shaped foreign body in the third web space was found. On further investigation with computer tomography revealed a canine tooth of an animal in the left hand (Figs. 2 and 3). With the above evidence of retained tooth in the third web space of left hand; surgical removal of retained tooth was performed under aseptic conditions. Later, the wound was effectively managed and it got healed completely.

3. Discussion

In this era of evidence based medicine, there is no alternative to the thorough evaluation of cases presenting to a medical

* Corresponding author. Tel.: +91 9632055551 (mobile).

E-mail address: ranganath.mamc@gmail.com (B.T. Ranganatha).<http://dx.doi.org/10.1016/j.jcot.2014.05.006>

0976-5662/Copyright © 2014, Delhi Orthopaedic Association. All rights reserved.

Fig. 1 – Radiograph of the hand, showing a comma shaped foreign body.

Fig. 3 – Sagittal CT image showing the canine tooth.

Fig. 2 – CT (3D reconstruction) image showing canine tooth with the root of the tooth clearly visible.

practitioner. Missing the foreign bodies is not uncommon^{1,3,4} and this entity is deemed as one of the major causes of medical litigations.^{5–8} In one study, 38% of patients had foreign bodies that were missed on initial wound inspection.¹ Another study found that only 75% of soft tissue foreign bodies were presented within 48 h, while patients with the remaining 25% presented weeks, months, and even years later.⁹ The first and the foremost task in examining a patient with hand injury is obtaining an accurate history and a thorough examination. No wound is small to harbour a large foreign body, hence an attempt for exploration of the wound if present should be made. The next important step in treatment of retained foreign bodies is roentgenogram.¹⁰ In literature, depending upon the nature of foreign body and the available facilities, various modalities of imaging are recommended for diagnosis and localization, which include plain radiographs, ultrasonograms, CTscans, MRI and fistulograms.^{11–13} A simple roentgenogram gives a lot of detail in case of radiopaque objects, like the size, shape and the position of the foreign body. Ultrasonography is more commonly used to detect radiolucent foreign bodies. The missed foreign bodies may produce immediate symptoms like wound infections or may remain dormant for even decades.¹ Retained foreign bodies in the hand can lead to various complications like infection, nerve injuries, metacarpal fracture and even an inclusion cyst.¹

The rare presentation of canine assault on humans with retained foreign body involving the head and face has been

well documented.^{14–16} However, the paucity of reports of dog bites presenting as retained foreign body in the hand prompted us to report the above case. There are only two reports of dog tooth presenting as a retained foreign body in the hand in German medical literature.^{17,18}

In short, the above case report of a rare canine assault resulting in a retained foreign body in the hand stresses the importance of a thorough history, clinical examination and use of appropriate imaging modalities in all doubtful cases.

Conflicts of interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

Acknowledgements

We are extremely thankful to the immense help provided from the scholars whose articles are cited and included in references of this manuscript. We are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

REFERENCES

1. Mark AA, William LN, Eugene SK. Diagnosis and treatment of retained foreign bodies in the hand. *Am J Surg.* 1982;144:63–67.
2. Mathur N, Sharma KKR, Tiwari VK. An unusual foreign body in hand a case report. *J Hand Surg Br.* 1986;11:135–136.
3. Steele MT, Tran LV, Watson WA, Muelleman RL. Retained glass foreign bodies in wounds: predictive value of wound characteristics, patient perception, and wound exploration. *Am J Emerg Med.* 1998;16:627–630.
4. Salati Sajad Ahmad, Rather Ajaz. Missed foreign bodies in the hand: an experience from a center in Kashmir. *Libyan J Med.* 2010;5. <http://dx.doi.org/10.3402/ljm.v5i0.5083>.
5. Dunn JD. Risk management in emergency medicine. *Emerg Med Clin North Am.* 1987;5:51–69.
6. Vukmir RB. Medical malpractice: managing the risk. *Med Law.* 2004;23:495–513.
7. Vermeiren De A, Maeseneer M. Medico legal aspects of penetrating hand and foot trauma: ultrasound of soft tissue foreign bodies. *JBR-BTR.* 2004;87:205–206.
8. Pfaff JA, Moore GP. Reducing risk in emergency department wound management. *Emerg Med Clin North Am.* 2001 Feb;25(1):189–201.
9. Levine MR, Gorman SM, Young CF, Courtney DM. Clinical characteristics and management of wound foreign bodies in the ED. *Am J Emerg Med.* Oct 2008;26(8):918–922.
10. Mathewson Jr C. Minor open wounds. *Surg Gynecol Obstet.* 1956;102:369–371.
11. Shrestha D, Sharma UK, Mohammad R, Dhoju D. The role of ultrasonography in detection and localization of radiolucent foreign body in soft tissues of extremities. *J Nepal Med Assoc.* 2009;49:5–9.
12. Saboo SS, Saboo SH, Soni SS, Adhane V. High-resolution sonography is effective in detection of soft tissue foreign bodies: experience from a rural Indian center. *J Ultrasound Med.* 2009;28:1245–1249.
13. Blankstein A, Cohen I, Heiman Z, Salai M, Michael Heim M, Chechick A. Localization, detection and guided removal of soft tissue foreign body in the hands using sonography. *Arch Orthop Trauma Surg.* 2000;120:514–517.
14. Walker T, Modayil P, Cascarini L, Collyer J. Dog bite fracture of mandible in a 9 month old infant: a case report. *Cases J.* 2009;2:44.
15. Shariff Z, Giannas J, Srinivasan J. Rare case of exostosis following dog bite. A case report. *Internet J Plast Surg.* 2006;2:2.
16. Iannelli A, Lupi G. Penetrating brain injuries from a dog bite in an infant. *Pediatr Neurosurg.* 2005;41:41–45.
17. Prokop A, Holzmüller W, Sommer B, Rehm KE. Dog bite injuries with foreign body incorporation. *Handchir Mikrochir Plast Chir.* 1993 Mar;25(2):90–94.
18. Sommer B, Neufang KF, Prokop A. Wrong diagnosis of a foreign body incorporation after a dog bite in the hand. *Aktuelle Radiol.* 1993 Jul;3(4):263–265.