

# ACCIDENTAL LODGEMENT OF AIR GUN PALLET IN THE BUCCAL SPACE OF 11 YEAR OLD GIRL – A CASE REPORT

<sup>1</sup>Dr. Divye Malhotra, <sup>2</sup>Dr. Navneet Sharma

<sup>1</sup>Senior Lecturer – Department of Oral & Maxillofacial Surgery, <sup>2</sup>Senior Lecturer – Department of Oral Medicine & Radiology, Himachal Dental College, Sundernagar, Himachal Pradesh.

## ABSTRACT

Air gun, although considered a toy can cause injuries ranging from trivial to grievous. The severity of injuries depend on the type of air gun used, distance at which it is fired and the anatomic site at which the pallet hits. This article describes a case involving a girl who was accidentally hit by an air gun pallet. The treatment strategy along with review of literature on short and long term complications of air gun injuries is discussed.

**Key words:** Air gun pellet, buccal space

## INTRODUCTION

Air gun is considered to be a toy for children. However incidents of air gun injuries are quite common. In the US alone, every year more than 30,000 injuries caused by air gun are reported.<sup>1</sup> Injuries could appear to be trivial but it may sometimes cause severe morbidity or even death<sup>2</sup>. Air gun injuries, most of time are accidental but could also be result of assaults. The following case report is presented to describe accident that occurred at home & resulted in lodgement of an air gun pallet in the left cheek of 11yr old girl. The management and complication of retained pallet are discussed.

## CASE REPORT

An 11yr old girl reported to the department of oral and maxillofacial surgery with air gun injury to the left cheek. At the time of presentation, the child has no symptoms of said injury. History revealed that girl and her sibling were playing at

home with air gun four days back. Girl's siblings were aiming at the target with airgun when girl accidentally came into the range of airgun and was hit by the airgun pallet. She was standing approx. 4m distance from her siblings. She experienced severe pain & was taken to a primary health centre from where she was referred to our institute. Examination revealed a small healed scar on the left side of chin (fig 1). The adjoining skin was depigmented. There was no exit mark visible. No sign of fracture or any other abnormality was detected on both extraoral and intraoral examination.

The patient was advised OPG to locate the air gun pellet. OPG revealed about 1cm×1cm irregular round radio opaque shadow at the inferior border of mandible near premolar region (fig 2). No other radio opaque shadow made clear that there wasn't any fragmentation of the pellet. It appeared that pellet had hit the girl with high velocity at an angle



Fig 1



Fig 2

and instead of hitting the bone it penetrated the soft tissue of left cheek and got lodged in the left buccal space.

The patient was advised removal of the pellet. The patients' father was also explained the consequences of leaving the fragment inside such as, foreign body reaction, soft tissue infection and possible lead poisoning. After obtaining the informed consent the pellet was removed from the buccal space by extraoral incision under local anaesthesia.

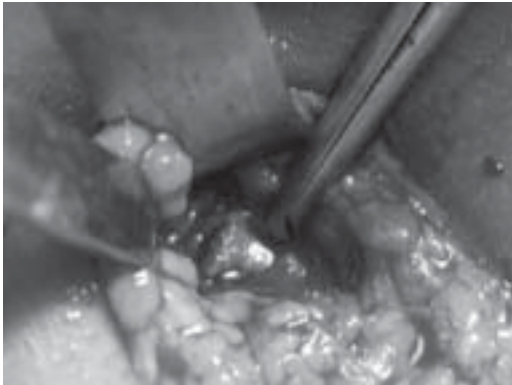


Fig 3



Fig 4

Approximately 3 cm incision was given at 2 cm below the inferior border of mandible. Blunt and sharp dissection was done along with probing to locate the pellet. The pellet was found to be entrapped in the soft tissue bed (Fig. 3) and was



Fig 5

carefully removed without causing any injury to the adjacent vital structures (Fig. 4). Wound was irrigated and closed in layers (Fig. 5). The entry wound was also excised and was closed with 4-0 silk. The patient was regularly followed up and sutures were removed after a period of one week. Postoperative period was uneventful and healing was satisfactory.

### DISCUSSION

Air gun injuries most of the time are accidental and unintentional, but some injuries could also be a result of assault. In rare cases, air gun could be used as a weapon for suicide<sup>3</sup>.

Depending on the type of airgun, the velocity of the projectile, distance at which it is fired and anatomic site of penetration are the factors that determine the gravity of injury<sup>4</sup>. Most air gun injuries occur in children. In a retrospective study on 101 children, it was found that 81% victims were male and medium age was 10.9 years<sup>3</sup>. Air gun injuries in children are generally more severe than adults. The adult skeleton can stop pellet projectiles but thin bone of children can easily be transversed by the projectile to enter the deeper structures<sup>5</sup>.

The anatomic site of pellet entry determines the type and severity of injury. It may range from minor trauma to serious injuries such as corneal perforation, liver laceration, stomach and intestinal perforation, cardiac perforation, haemopneumothorax and even death<sup>1</sup>. In the head and neck region air gun can cause injury to the eyeball with resultant loss of vision. When the pellet enters the cranium it can cause intracranial bleeding, leakage of CSF, meningitis, brain abscess, formation of traumatic aneurysm and total carotid cavernous sinus fistula<sup>6</sup>. Injuries in the facial region can result in pellets being lodged in the jaw bones, paranasal sinuses<sup>7</sup> or in soft tissue as in the case presented.

When easily accessible surgically such as in the present case the pellets can easily be removed, but when the pellets become embedded in deeper and vital structures, the surgical procedure can be highly invasive resulting in significant morbidity. The projectile from air gun, besides causing immediate and acute trauma can also cause late complications if not removed. In the

paranasal sinuses it may cause chronic inflammation, rhinorrhea and neuralgic type of pain<sup>8</sup>. In a case report, cephalgia of forty years duration was found to be caused by a retained airgun pellet in the maxillary antrum<sup>9</sup>. Besides, the fragments of the pellet can migrate from the site of entry<sup>10</sup>.

Retained pellets can also evoke foreign body reaction<sup>11</sup>. If the pellet material is inert, it may be walled off with fibrous capsule around it<sup>12</sup>. Lead from the retained bullet can cause lead poisoning (plumbism), although it is more often reported with gunshot injuries.<sup>13,14</sup> Chronic exposure to low levels of lead may lead to learning deficits, changes in behaviour, short stature, and poor weight gain. The airgun pellets are generally made up of 95% lead, 2.5% tin and 2.5% antimony,<sup>15</sup> therefore the risk of lead poisoning is real. Bowen and Magauran<sup>16</sup> reported raised serum levels of lead in 6 cases of ocular injuries caused by airgun pellet.

In the reported case, the pellet was embedded in the soft tissue of the cheek. The pellet, if left in situ could cause both immediate and late complications as listed above. As the patient was a young girl the risk of future lead toxicity affecting her physical and mental development was high. Above all, the site of pellet lodgement was easily accessible for surgical removal. Hence in the present case patient was advised surgical removal of pellet.

### CONCLUSION

Air gun injuries have a wide clinical presentation from minor injuries to more serious life threatening injuries. Modern air gun muzzle velocity can be as high as that of conventional gun. Therefore, air gun must be considered a lethal weapon and not a mere toy. Strict regulation and public education regarding its potential dangers are required so that air gun injuries can be prevented or at least be minimized.

### REFERENCES

1. Naude GP, Bongard FS. From deadly weapon to toy and back again: the danger of air rifles. *J trauma* 1996;41(6):1039-43
2. Myre LE, Black RE. Serious air gun injuries in children: update of injury statistics and presentation of five cases. *Pediatr Emerg Care* 1987;(3):168-70
3. Bratton SL, Dowd MD, Brogan TV, Hegenbarth, MA. Serious and fatal air gun injuries: more than meets the eye. *Pediatrics* 1997;100(4):609-12
4. Martinez-Lage JF, Mesones J, Gilabert A. Air gun pellet injuries to the head and neck in children. *Pediatr Surg Int* 2001;17(8):657-60
5. Mrinalini Mahajan, Naseem Shah. Accidental lodgement of an air gun pellet in the maxillary sinus of a 6 year old girl: case report. *Dental Traumatology* 2004;(20):178-180
6. Amirjamshidi A, Abbassioun K, Roosbeh H. Airgun pellet injuries to the head and neck. *Surg Neurol* 1997;47(4):331-8
7. Lubianca Neto Jf, Mauri m, Machado JR, Ceccon A, Paim da cunda C. Air gun dart injury in paranasal sinuses left alone. *Int J Pediatr Otorhinolaryngol* 2000;52(2):73-76
8. O'Connell JE, Turner NO, Pahor AL. Air gun pellets in the sinuses. *J Laryngol Otol* 1995;109(11):1097-100
9. Grevers G, Reiterer A. Traumatically induced foreign bodies of the paranasal sinuses. *Laryngorhinootologie* 1990;69:155-7.
10. Rapp LG, Arce CA, Mc Kenzie R, Darmody WR, Guyot DR, Micheal DB. Incidence of intra cranial bullet migration. *Neurol Res* 1999;21:475-80.
11. Assalita LJ. Delayed foreign body reaction following air gun pellet trauma. *J Foot Surg* 1991;30:187-9.
12. Ordog GJ, Albin D, Wasserberger J, Schlater TL, Balasubramaniam S. 110 bullet wounds to the neck. *J Trauma* 1985;25:238-46.
13. Kikano GE, Stange KC. Lead poisoning in a child after gun short injury. *J Fam Pract* 1992;34:498-500.
14. de- Maduriera PR, de- Capitani EM, Vieira RJ. Lead poisoning after gun shot wound. *Sao- Paulo Med J* 2000;118:78-80.
15. Steindler RA. Air gun pellet penetration. *Med Sci Law* 1980;20:93-98.
16. Bowen DI, Magauran DM. Ocular injuries caused by air gun pellets: an analysis of 105 cases. *Br Med J* 1973;1:333-7.