

Limb Injuries after Gunshot in Civilians

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ABSTRACT

Since March 2011, after the Egyptian revolution, 8 civilian limbs were suffered from gunshot injuries which were presented in the surgical practice in Mataria Teaching Hospital.

The pattern of gunshot injuries were complex as it affected the superficial and the deep tissues including the blood vessels, nerves, muscles and the underlying bone due to penetration of large number of pellets and sometimes the plastic missile itself inside the tissues. These pellets resulted in superficial and deep destruction and foreign body reaction at the site of trauma, so initial conservative management for 2-10 days was crucial before definite reconstruction and the results after management were discussed.

In the gunshot injuries, initial conservative management for 2-10 days before definitive reconstruction was found to be more beneficial and practical procedure for the management of such injuries.

INTRODUCTION

Gunshot injuries (GSI) cause profound morbidity and significant mortality [1]. These injuries occur in both military and civilian events. The causes of gunshot injuries in Egypt like many other African and developing countries include communal clashes, sectarian religious crises, military violence, armed robbery, hunting, political violence, students'.

Cultism activities and rarely sporting and suicidal attempt [2-5]. GSI were first reported in West Africa following the Nigerian civil war of 1967-1970 [6]. It is the second commonest cause of death per 1000 in Transkei region of South Africa [7]. Recently the incidence has been on the increase worldwide [8]. In Egypt, although it was uncommon injury before 25th of January 2011, recently it becomes a very common one which it may be as equal as road traffic accident. During our surgical practice in the last 30 years we rarely saw this injury. A case of loss of facial identification of a survivor after fire arm injury to the head has been reported [9]. GSI could be devastating especially

when it involves vital organs and could result to instant death. The cost of treating patients that survive these injuries could be enormous especially when the injuries are to the head, chest, abdomen and the spine [10-12].

The aim of this study is to find the pattern of management of gunshot injuries in our community.

MATERIAL AND METHODS

Since March 2011 till January 2013, eight cases of limb injuries after gunshot were managed in the plastic surgery department-Mataria Teaching Hospital.

All cases were males, manual workers, with low educational level, their age ranged between 16-42 years with an average of 29 years. A very close gunshot injuries affect the hand from the palmar aspect in two cases and the pellets were forming aggregation between the bones and small muscles of the hands. The first case suffered of a close firing to the hand led to fracture of the 1st metacarpal with bone fragments and destruction of the metacarpophalangeal joint as well as loss of soft tissues to the 1st web space. The second case presented with laceration of the thenar muscles and the overlying skin of the left hand as a result of near shooting gun injury, where the pellets were forming an aggregate in the muscle. The third case suffered of gun shot injury to the posterior aspect of the arm with laceration of the triceps muscle and the skin overlying it, measuring 10cmx10cm.

Five cases were suffered from injuries of these shooting gun pellets in the lower limbs. One of them had a gunshot injury in the right thigh with severe laceration of the skin and muscles of the anterior and medial aspect of the upper 1/2 of the thigh with laceration of the vasti group. The pellets and the plastic missile were presented in the deeper aspect of this muscle group.

The 2nd case presented with a gunshot in the lower third of the leg with comminuted fracture of the lower 1/3 of the tibia and soft tissue loss over it.

The 3rd case suffered from the gunshot injury from a very near distance which led to fracture of the right fibula and lateral maleolus with skin defect over it.

In the 4th case, the gunshot injury was in the anterior and antromedial aspect of the middle third of the right leg without soft tissues loss but the pellets and missile had an inlet anteriorly and stopped in the posterior muscle group of the leg.

While the 5th case presented with a very near gunshot injury to the dorsum of the right foot with fracture of the 1st metatarsal bone and skin loss of about 10x4cm surface area (Figs. 1,2,3).

In all cases resuscitation and close medical observation were carried on. In all cases the vascularity and the nerves were examined and carefully

observed. The wound care was in the form of antiseptic and dressing in the first few days without any trials to interfere surgically. Investigations in the form of laboratory, and plain X-ray to the injured region were done in all cases. After 2 days, post injury with maximum of 10 days, the patient was planned for debridement of the necrotic tissue and extraction of the pellets as much as we could from the deeper level of the injured tissues and the plastic missile as well, followed by fixation of the fractured bone. In all cases we left some of the aggregated pellets buried in the deeper planes between the normal structures as shown in Fig. (3). The methods of wound repair, fixation of the bone, the joint if injured, and repair of the muscles whenever possible, were in the form of direct closure of the wound, skin graft, or flap reconstruction to the exposed bones, tendons and joint. The flaps used were distally based antromedial fasciocutaneous flap, reversed island superficial sural artery fasciocutaneous flap, medially based cross leg fasciocutaneous flap for lower limb injuries, and groin flaps for hand injuries.



Fig. (1): Post gunshot injury to the dorsum and medial aspect of the foot with exposed first metatarsal bone.

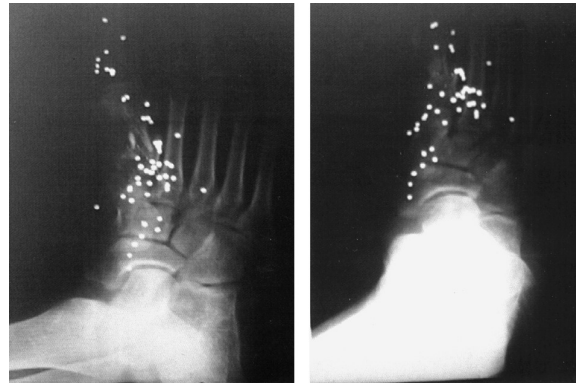


Fig. (2): Plain X-ray shows the aggregated pellets between the metatarsals of the foot in the deep layers.



Fig. (3): Cross leg flap for reconstruction of the soft tissue defect and the exposed bone.



Fig. (4): Late postoperative view shows complete healing of the defect.

RESULTS

The average hospitalization time ranged between 15-45 days with an average of 30 days. The injured hands suffered from 1st metacarpophalangeal joint ankylosis with loss of function to the index finger and limited movement of the thumb. A case which needs further planes for arthroplasty.

The lower limb injuries were more lucky as the residual lesions were pain at the site of injury specially that one suffered from vasti muscles laceration and the other one with foot injury. We explained to the patient the medical state they had and impossibility to extract of all foreign bodies impeded in the deeper tissues without any complication. The surgical procedure was planned to cover the soft tissues defect were comptent with minimal complications in the form of mild inflammatory process and distal flap necrosis and both responded completely to conservative treatment.

DISCUSSION

Shooting gun injury was presented as a wide spread subcutaneous presence of the pellets as reported in many reports [1-8].

In our cases, the very close distance of the shooting gun to the victim resulted in the presence of the pellets and in some of them the plastic missile itself in the deeper structures.

The severity of the injury was due to the close distance after firing gun and the amount of the pellets with its mechanical and thermal effect, as a result of that, a delay for 2-10 days post injury was carried out, during these period a conservative management to the wound was carried on. After this period the surgical removal of the pellets permitted to save as much as we could to the viable structure. We considered this plane as a safe one for the management of near gunshot injuries to the limbs.

Conclusion:

We concluded that shooting gun injury from very close distance must be managed with delayed

surgical intervention to extract the reachable pellets and to repair the injured bone and soft tissue.

It will be helpful if the authorities carries out a community program to prevent the civilian illegalized shooting guns. Also it is important to carry on a community teaching program screening the hazards effect and the criminal aspect of the shooting guns in civilian conflicts.

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