

A Simple Method of Preventing Needle Stick Type Injury to the Operator's Finger While Performing Intermaxillary Fixation

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Abstract Erich arch bars and other wiring techniques were commonly used for closed reduction of many maxillofacial fractures. These wires can cause inadvertent finger puncture of the operator's finger and can increase the risk of spread of blood borne diseases like HIV and Hepatitis. To avoid this complication we recommended the use of dynaplast adhesive tape (Johnson and Johnson Ltd., Mumbai, India) over all the finger tips, before wearing the gloves, while performing IMF.

Keywords Intermaxillary fixation · Wiring · Percutaneous finger injury · Bandages over the fingers · Finger puncture · Needle stick type injury

Closed reduction with intermaxillary fixation (IMF) has been used for many facial fractures and most commonly for condylar fractures. Erich arch bars are most commonly used for achieving IMF [1]. For fixation of arch bars, generally 16–22 interdental wires are used. Each wire has the potential for inadvertent finger puncture [2]. There are at least 23 known bloodborne pathogens, including hepatitis B and C, and HIV, that can spread through contaminated wires used for intermaxillary fixation. The incidence of percutaneous injury and glove perforation was significantly high with wiring techniques and ranges from 18.18 [3] to 21 % [4].

From December 2010 to December 2011, 86 patients were treated with closed reduction for mandibular fractures in Dental Clinic and Research Centre Bhopal (MP) with the

help of Erich arch bar (Dentaurum's Barres Eaich Arch Bars, Germany) using 24 and 26 gauge wires. Patients were operated by a single operator.

The percutaneous injury occurs in eight patients out of 43 patients treated by wearing only single glove (Fig. 1) in both the hands. The injury most commonly affects the left hand of the operator (index finger in six patients and thumb in two patients). These findings correlate with that of Janine Jagger and Melanie Balon [5] who concluded that injury occurs more in the left hand and index finger (26 %) while using suture needle and scalpel blade.

To overcome this complication we used dynaplast adhesive tape (Johnson and Johnson Ltd., Mumbai, India) over all the finger tips, before wearing the gloves, while performing IMF before wearing the gloves (Fig. 2). The dynaplast saves the fingers from percutaneous injury. We



Fig. 1 Glove puncture and percutaneous injury to the index finger

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Fig. 2 Dynaplast placed on all the fingers before wearing gloves (RAI modification)

used this technique in 43 patients with no percutaneous injury to the fingers.

This is a simple and economical technique by which we can avoid the risk of needle stick type injury to the

operator's fingers and prevent spread of bloodborne diseases like HIV and Hepatitis.

Conflict of interest None.

References

1. Blitz Meredith, Notarnicola Kurt (2009) Closed reduction of the mandibular fracture. *Atlas Oral Maxillofac Surg Clin N Am* 17: 1–13
2. Arthur G, Berardo N (1989) A simplified technique of maxillo-mandibular fixation. *J Oral Maxillofac Surg* 47:1234
3. Rai Datarkar, Borle (2011) Are maxillomandibular fixation screws a better option than Erich arch bars in achieving maxillomandibular fixation? A randomized clinical study. *J Oral Maxillofac Surg* 69:3015–3018
4. Avery CME, Johnson PA (1992) Surgical glove perforation and maxillofacial trauma: to plate or wire? *Br J Maxillofac Surg* 30:31–35
5. Jagger Janine, Balon Melanie (1995) Suture needle and scalpel blade injuries. *Adv Expo Prev* 1:1–6