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## ORIGINAL ARTICLE

### Surgical Glove Perforation and Percutaneous Injury during Intermaxillary Fixation with 0.5 Mm Stainless Steel Wire

*Perforation Du Gant Chirurgical Et Blessure Percutanée Lors De La Fixation Intermaxillaire Avec Un Fil En Acier Inoxydable De 0,5 Mm*

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#### ABSTRACT

**INTRODUCTION:** The risk of exposure of either the patient or the surgeon to pathogens when the surgical glove is perforated is significant. This is particularly so in jaw fractures when intermaxillary fixation is done with the stainless-steel wire as many perforations also result in percutaneous injury.

**MATERIAL AND METHOD:** This study was carried out in two tertiary Hospitals in Abuja, Nigeria. Adult patients for intermaxillary fixation as a result of jaw fractures were consecutively recruited into the study. Similarly, surgeons and their trainees (assistants) were also recruited. Factors investigated included the method of gloving used by surgeons and trainees (single versus double gloving), glove perforations and percutaneous injury rates, years of operator's experience, among others. During surgical operations, percutaneous injuries were recorded and obviously perforated or torn gloves were labelled and changed. At the end of every surgical procedure, gloves used were investigated for perforation.

**RESULTS:** A total of 564 gloves were investigated (Surgeons-337; Trainees-227) after use for wire intermaxillary fixation procedures. The frequency of glove perforations for the surgeons was 72 (21.4%). Forefinger perforations were most frequent; 40 (55.6%) cases. Assistants, had 35 (15.4%) cases of glove perforations. Percutaneous injury occurred in 9.7% (7/72) and 5.7% (2/35 cases) of cases for surgeons and assistants, respectively.

**CONCLUSION:** The study revealed high risk for wire-based IMF procedures. Single gloving was more frequently associated with percutaneous injuries although double gloving was more associated with perforations with higher surgeon infection risk. Double gloving reduces the risk of percutaneous injuries and, therefore, the likelihood of exposure to blood-borne pathogens. **WAJM 2022; 39(8): 823-828.**

**KEYWORDS:** Intermaxillary fixation, Gloves, Surgeon, Percutaneous injury.

#### RÉSUMÉ

**INTRODUCTION:** Le risque d'exposition du patient ou du chirurgien à des agents pathogènes lorsque le gant chirurgical est perforé est important. Cela est particulièrement le cas dans les fractures de la mâchoire lorsque la fixation intermaxillaire est effectuée avec le fil en acier inoxydable, car de nombreuses perforations entraînent également des lésions percutanées.

**MATÉRIEL ET MÉTHODE:** Cette étude a été réalisée dans deux hôpitaux tertiaires à Abuja, au Nigeria. Des patients adultes pour une fixation intermaxillaire à la suite de fractures de la mâchoire ont été recrutés consécutivement dans l'étude. De même, des chirurgiens et leurs stagiaires (assistants) ont également été recrutés. Les facteurs étudiés comprenaient la méthode de gloving utilisée par les chirurgiens et les stagiaires (simple versus double gloving), les perforations de gants et les taux de blessures percutanées, les années d'expérience de l'opérateur, entre autres. Au cours des opérations chirurgicales, des blessures percutanées ont été enregistrées et des gants manifestement perforés ou déchirés ont été étiquetés et changés. À la fin de chaque intervention chirurgicale, les gants utilisés ont été étudiés pour la perforation.

**RÉSULTATS:** Au total, 895 gants ont fait l'objet d'une enquête (Surgeons-337; Stagiaires-227) après utilisation pour les procédures de fixation intermaxillaire du fil. La fréquence des perforations de gants chez les chirurgiens était de 72 (21,4 %). Les perforations de l'index étaient les plus fréquentes, 40 (55,6 %) cas. Assistant, avait 35 (15,4%) cas de perforations de gants. Des lésions percutanées sont survenues dans 9,7 % (7/72) et 5,7 % (2/35 cas) des cas chez les chirurgiens et les assistants respectivement.

**CONCLUSION:** L'étude a révélé un risque élevé pour les procédures filaires du FMI. Le gloving simple était plus fréquemment associé à des blessures percutanées, bien que le double gloving soit plus associé à des perforations avec un risque d'infection plus élevé chez le chirurgien. Le double gloving réduit le risque de blessures percutanées et, par conséquent, la probabilité d'exposition à des agents pathogènes transmissibles par le sang. **WAJM 2022; 39(8): 823-828.**

**MOTS CLÉS:** Fixation intermaxillaire, gants, Chirurgien, Lésion percutanée.

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