

PUBLIKASI JURNAL

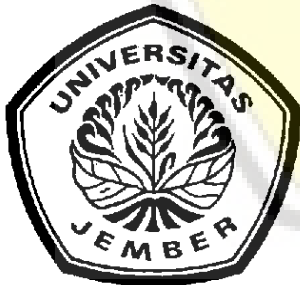
Extraction of gunshot corpus allienum in upper cervical spine with transoral approach: A case report

dr. Novan Krisno Adji, Sp.BS

NIP. 198511212019031005

- Tenaga pengajar Ilmu Bedah
Fakultas Kedokteran Universitas Jember

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
UNIVERSITAS JEMBER



Karya Ilmiah di publikasikan pada:

*indonesian Journal of Neurosurgery (IJN) 2021, Volume 4,
Number 1: 1-3*

P-ISSN.2089-1180, E-ISSN.2302-2914





Home > Archives > Vol 4, No 1 (2021)

(Available online 1 April 2021)

Vol 4, No 1 (2021): (Available online 1 April 2021)

Table of Contents



Submit An Article

Editorial Board



We Give Professional Support

By Qualified Psychiatrists, Psychologists, Counselors, Therapists. Consult Us Now

IPC

Articles

Extraction of gunshot corpus alienum in upper cervical spine with transoral approach: A case report

Novan Krisno Adji, Muhammad Yuda Nugraha

Online First: April 23, 2021 | DOI: 10.15562/ijn.v4i1.129

Abstract | PDF

Articles

The correlation between the degree of traumatic brain injury based on the glasgow coma scale (GCS) and the emersion of post concussion syndrome (PCS) acute onset in the patients of post traumatic brain injury at Dr. M. Djamil Hospital Padang

Muhammad Reza Azriyantha, Syaiful Saanin, Hesty Lidya Ningsih

Online First: April 22, 2021 | DOI: 10.15562/ijn.v4i1.170

Abstract | PDF

Articles

Relationship between CT scan density and hematoma age on chronic subdural hematoma cases

Zulfadli Rizky Akbar, Agus Turchan, Sri Andreani Utomo, Dyah Fauziah

Online First: April 22, 2021 | DOI: 10.15562/ijn.v4i1.135

Abstract | PDF

Articles

Effect of pre-surgical factors against degenerative lumbal patient surgical actions: evaluation using modified Oswestry disability index and rolland morris

Yudha Fitrian Prasetyo, Abdul Hafid Bajamal, Hari Basuki

Online First: April 23, 2021 | DOI: 10.15562/ijn.v4i1.140

Abstract | PDF

Articles

The Indonesian Central Nervous System Tumors Registry (Ina-CTR) : 7 years result from single institution of primary brain tumor epidemiology

Joni Wahyuhadi, Muhammad Fakhri Raiyan Pratama, Roidah Taqiyya Zahra Wathoni, Hari Basuki

Online First: April 23, 2021 | DOI: 10.15562/ijn.v4i1.142

Abstract | PDF

Articles

A Rare Combined Trigeminal Neuralgia with Hemifacial Spasm in a 78-Year-Old Male Patient

Christopher Lauren, Vito Masagus Junaidy, Yohanes Firmansyah, Elric Brahm Malelak, Donny Argie

Online First: April 28, 2021 | DOI: 10.15562/ijn.v4i1.121

Abstract | PDF

Articles

Articles



[Home](#) > [Editorial Board](#)

Editor-in-Chief

Prof. Abdul Hafid Bajamal, MD., Ph.D.
(Scopus ID), (Google Scholar)
Professor of Neurosurgery, Universitas Airlangga
Surabaya, Indonesia

Associate Editors

Arie Ibrahim, MD., Ph.D.
(Scopus ID)
Universitas Mulawarman Samarinda

Thohar Arifin, MD., Ph.D.
(Scopus ID), (Google Scholar)
Universitas Diponegoro, Semarang, Indonesia

Asra Al Fauzi, MD., Ph.D.
(Scopus ID), (Google Scholar)
Universitas Airlangga Surabaya, Indonesia

Wihasto Suryaningtyas, MD., Ph.D.
(Scopus ID), (Google Scholar)
Department of Neurosurgery, Faculty of Medicine, Universitas Airlangga,
Soetomo General Hospital Surabaya, Indonesia

Reza Arifianto, MD.
(Scopus ID)
Universitas Airlangga Surabaya

Editors of Sections

Neurooncology:
Djoko Widodo, MD., Ph.D.
Makassar, Indonesia

Cerebrovascular:
Achmad Adam, MD., Ph.D.
(Google Scholar)
Universitas Padjadjaran, Bandung, Indonesia

Pediatric Neurosurgery:
M. Arifin Parengreni, MD., Ph.D.
(Google Scholar)
Universitas Airlangga, Surabaya, Indonesia

Spinal Surgery:
Tjok Gede Bagus Mahadewa, MD., Ph.D.
(Scopus ID)
Universitas Udayana, Department of Neurosurgery,
Bali, Indonesia

Functional Neurosurgery:
Agus Turchan, MD., Ph.D.
(Scopus ID), (Google Scholar)
Universitas Airlangga, Surabaya, Indonesia

Neurotrauma:
M. Zafrullah Arifin, MD., Ph.D.
(Scopus ID), (Google Scholar)
Department of Neurosurgery, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

Editorial Board Members

Zainal Muttaqin, MD., Ph.D.
(Scopus ID)
Universitas Diponegoro, Semarang, Indonesia

Sri Maliawan, MD., Ph.D.
(Scopus ID), (Google scholar)
Departement of Neuro Surgery, Universitas Udayana, Denpasar Bali, Indonesia
Sanglah General Hospital

Eka Julianto Wahjoe Pramono, MD., Ph.D.
(Google Scholar)
Jakarta, Indonesia

Endro Basuki, MD., Ph.D.
(Scopus ID)



[Submit An Article](#)

[Editorial Board](#)



Casual Shirt

Empat warna dari Casual Shirt yang kamu butuhkan untuk menemani keseharianmu.



THENBLANK

Eko Prasetyo, MD., Ph.D.

(Scopus ID),
Universitas Sam Ratulangi, Manado, Indonesia

Joni Wahyuhadi, MD., Ph.D.

(Scopus ID), (Google Scholar)
Universitas Airlangga, Surabaya, Indonesia

Alfred Soetrisno, MD., Ph.D.

Jakarta, Indonesia

Nyoman Golden, MD., Ph.D.

(Scopus ID), (Google Scholar)
Department of Neurosurgery, Faculty of Medicine, Universitas Udayana, Denpasar, Bali, Indonesia

Eko Agus Subagio, MD., Ph.D.

(Google Scholar)
Universitas Airlangga, Surabaya, Indonesia

Setyo Widi Nugroho, MD., Ph.D.

Jakarta, Indonesia

Ahmad Faried, MD., Ph.D.

(Scopus ID), (Google Scholar)
Department of Neurosurgery, Faculty of Medicine, Universitas Padjadjaran - Dr. Hasan Sadikin Bandung, Indonesia

Wismaji Sadewo, MD., Ph.D.

(Scopus ID), (Google Scholar)
Universitas Indonesia,
RSUPN Dr. Cipto Mangunkusumo,
Jakarta, Indonesia

Roland Sidabutar, MD., Ph.D.

(Scopus ID), (Google Scholar)
Universitas Padjadjaran, Bandung, Indonesia

Advisory Boards

R.M. Padmosantjojo, MD., Ph.D.

(Scopus ID)
Universitas Indonesia, Jakarta, Indonesia

Satyanegara, MD., Ph.D.

(Scopus ID)
Universitas Indonesia, Jakarta, Indonesia

Hilman Mahyuddin, MD., Ph.D.

(Scopus ID)
Universitas Indonesia,
RSUD Dr. Cipto Mangunkusumo
Groote Schuur Hospital, Cape Town, South Africa

Kazadi Kalangu, MD., Ph.D.

(Scopus ID)
University of Zimbabwe, Harare, Zimbabwe, Africa

Luciano Mastronardi, MD., Ph.D.

(Scopus ID), (Google Scholar)
Azienda Complesso Ospedaliero San Filippo Neri, Rome, Italy

Mohsen Nouri, MD., Ph.D.

(Scopus ID), (Google Scholar)
Ahvaz, Iran

Erol TaAydemiroÄyü, MD., Ph.D.

(Scopus ID)
Private Consultant, Istanbul, Turkey

Lynne Lourdes H. Lucena, M.D., FAFN, FPCS.

Philippines

Dato' Dr. Hj Jafri Malin Datuk Hj. Abdullah, MD., Ph.D.

(Scopus ID)
Malaysia

Editorial Assistant

Yutika Amelia Effendi, B.Comp.Sc., M.Comp.Sc.

(Google Scholar)
Universitas Airlangga, Surabaya, Indonesia

Published by:



For Indonesian Association of
Neurological Surgeons, Indonesia

Indonesian Journal of
Neurosurgery, 6 - 8, Airlangga,
Surabaya-Indonesia

+62 31 5501325

+62 31 5025188

editor@ina-jns.org

Contact

Journal information

Editorial Board

Abstracting & Indexing

Privacy Statement

Home

Last Issue

Archive

Author Guidelines

Open-Access Licence



Indonesian Journal of Neurosurgery



CrossMark

Extraction of gunshot corpus alienum in upper cervical spine with transoral approach: A case report

Novan Krisno Adji^{1,2*}, Muhammad Yuda Nugraha²¹Neurosurgery Department, dr. Soebandi Regional Hospital, Jember, Indonesia²Faculty of Medicine, University of Jember, Indonesia

*Corresponding to :

Novan Krisno Adji; Neurosurgery Department, dr. Soebandi Regional Hospital, Jember, Indonesia; [soebandi@pdpersi.co.id/](mailto:soebandi@pdpersi.co.id) sistemrsdrsoebandi@gmail.comReceived: 2020-05-11
Accepted: 2021-03-13
Published: 2021-04-22

ABSTRACT

Introduction: Penetrating trauma that caused by gunshot injuries have been reported about 17–21% of all spinal cord injuries. Transoral approach may facilitate accessing the lumens and sites such as upper cervical spine with minimally invasive surgical exposure. Here, we present an interesting case of removal a bullet in the cervical spine with new method.

Case Presentation: A 53-year-old man who underwent a gunshot in the maxillary region of the face. A CT scan of head and neck showed that a metallic foreign body located in corpus vertebrae as high as C1-C2. The bullets in this patient were removed under the minimal invasive surgery through transoral approach. The patients were discharged without neurological deficit.

Conclusion: The presented transoral approach can be used as minimal invasive surgery method to extract corpus alienum in upper cervical spinal region without spinal cord tissue damage.

Keywords: Cervical spine, Corpus alienum, Gunshot injury, Transoral approach

Cite This Article: Adji, N.K., Nugraha, M.Y. 2021. Extraction of Gunshot Corpus Alienum in Upper Cervical Spine with Transoral Approach: A Case Report. *Indonesian Journal of Neurosurgery* 4(1): 1-3. DOI: 10.15562/ijn.v4i1.129

INTRODUCTION

Spinal cord injury (SCI) occurs after traumatic injury with range of incidences are 12.1 to 57.8 cases per million annually both penetrating or non-penetrating.¹ The third most causes of spinal cord injury are motor accident, falling from heights accident and penetrating trauma.² Common case that causes penetrating trauma is stabbing injury with knives, missile, or gunshot where usually occurs in high crime rates area. And gunshot injuries have been reported as penetrating trauma that causes SCI about 17–21%.³ Cervical spine trauma incidence is 45–75% compared with the others location of traumatic SCI.⁴ Cervical spine trauma is potentially causes long-term disability because this structure consists of complex neurovascular structures. Thus, operating through this region represents a challenge.⁵

CASE PRESENTATION

A 53-year-old man was brought to the emergency room (ER) of dr. Soebandi Regional Hospital with severe headache, irregular breathing and weakness in both

legs after getting gunshot in the maxillary region of the face. The patient was taken anterior-posterior and lateral cervical photographs (Figure 1) at a Level C Hospital in the Kalisat region before being referred to dr. Soebandi General Hospital.

Based on anamnesis, the patient complained severe headache with behavioral pain scale 7-9, while on physical examination the vital signs were normal but there was thoracoabdominal respiration. In the inspection of neck and spine region, there was normal without any sign of inflammation or cerebrospinal

fluid fistula. The patient showed full of consciousness and intact cranial nerve function during neurological examination, but there were lower paraparesis. After a thorough and stable evaluation, the patient was given prophylaxis as an initial treatment in the ER with ceftazidime and tectagam to prevent probably infection. Then the patient underwent a head and neck CT scan in the ER. Based on CT scan evaluation, there was a corpus alienum with a metal density in anterior of corpus vertebrae as high as C1-C2 without abnormalities in spinal cord (Figure 2).



Figure 1. Anterior-posterior and lateral cervical photographs. Corpus alienum found in the upper cervical region (yellow circle)

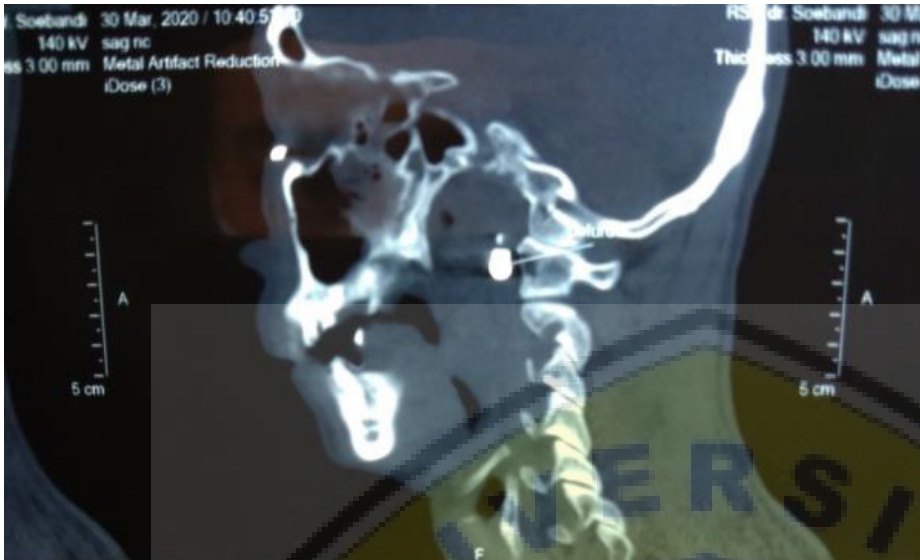


Figure 2. CT scan of cervical region

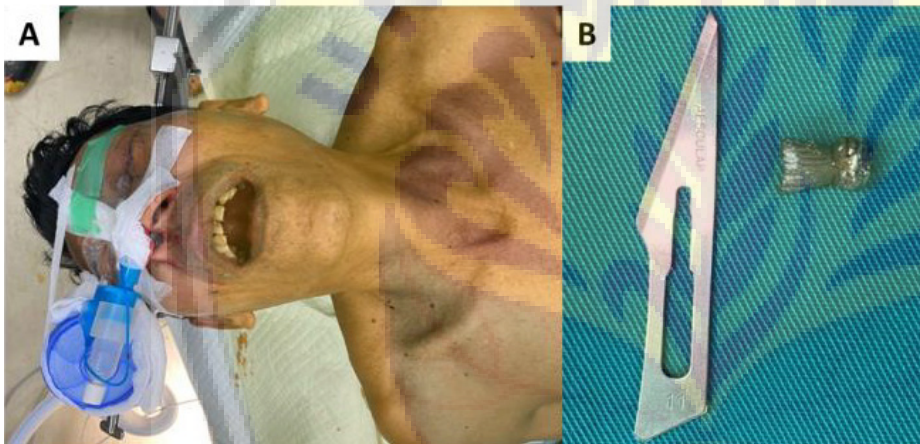


Figure 3. (A) Transoral approach surgery patient's position. (B) Corpus allienum bullet after extraction

Then the patient planned surgery to extract the corpus allienum through transoral approach (Figure 3A). Corpus allienum that had been obtained is a bullet where located at the anterior arcus of vertebrae C1 during surgery. After the bullet was removed (Figure 3B), the spinal cord was decompressed and pulsated well. The patient was treated post surgery in the intensive care unit for 48 hours without the aid of a ventilator. Three days post surgery the patient had an improvement in his motor function on both lower extremities. The bladder and bowel functions had also improved as the patient could feel and hold urine. The patient was discharged on day 4 postoperatively with full of consciousness and no neurological deficit.

DISCUSSION

Gunshot injury to the spine causes tissue damage in gunshot injury that depends on velocity, mass, shape, and composition of the bullet material that determine the severity of the trauma. Generally, tissue damage causes in the surrounding tissue or secondary damage that creates cavitation process of the tissue by generating shock waves.⁶ In this case, the type of bullet that was found is civilian weapon, wind rifle bullet, which is low velocity, small, blunt and metal composed by iron. This type of bullet causes a direct injury with low comorbidity incidence.

Initial treatment of patients with gunshot injury should attend systemic stabilization, then a detail history including mechanisms of trauma, type of

weapon, distance, and the number of shots should be recorded as the protocol of basic trauma resuscitation in ATLS. To determine the level of SCI can be found on neurological examination. The severity of the neurological deficit increases the risk of death in patient.⁷ Wounds should be identified as an entry wound and exit wound and recorded in which region. The wounds should also be inspected for any leakage of cerebrospinal fluid, bullets, and another corpus alienum. Removing the corpus alienum in the ER should be avoided because it possible severe bleeding. Therefore extraction of the corpus alienum should be performed in the operating room.⁸

The treatment strategies remain being debated. In 1990, Kupcha et al suggested an observation rather than surgical removal of retained bullet fragments in the cervical spine of the patients because it does not increase the risk of infection while surgical management might result in secondary complications.^{9,10} However, it should be noted the possibility that the bullets migrate from their initial locations. The migration of the bullets may easily damage the surrounding structures which are a small body part with several vital contents including important nerves and blood vessels. Therefore surgical is necessary to remove the corpus allienum, but it should be noted that there is high possibility of neurovascular injury.^{11,12} Surgical procedure to remove a corpus allienum should performs an appropriate techniques with minimal complication.¹³ In this case, we used transoral approach to extract the corpus allienum.

Transoral approach can access the craniovertebral junction area as anterior arch of C1.¹⁴ Transoral approach technique was uncommon used to remove corpus allienum from upper cervical spine region. The advantage of this approach is minimal damage in surrounding tissues, thus decreasing surgical complications. And then there have been significant improvements in the efficacy and safety of the transoral approach over the past several decades. Depending on the location of the bullet in the upper cervical region, transoral approaches were feasible as alternative safety technique.¹⁵

