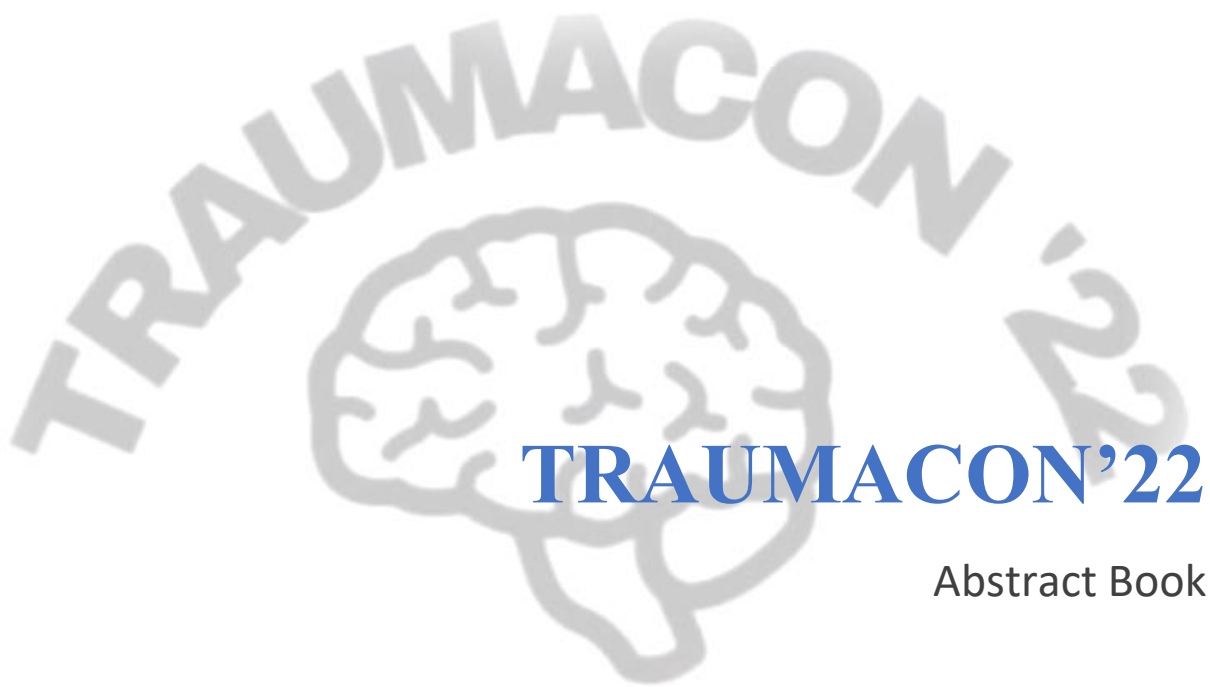


TRAUMACON '22



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Abstract Book

Under Supervision & Direction of Prof. Luis Borba
Organised by Dr. Noor ul huda Maria

A multi-center, retrospective cohort study

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Keywords: Cerebrolysin, Severe Traumatic Brain Injury, Glasgow Coma Score, Glasgow Outcome Score, disability, neurorehabilitation, clinical outcome, neurorecovery

Abstract

Background: Severe traumatic brain injury (TBI) patients with nonoperative lesions are known to have a poorer prognosis. Recent and ongoing clinical studies have been exploring the utility of Cerebrolysin in improving patient outcomes among TBI patients; however, few studies are available on the effect of Cerebrolysin among nonoperative severe TBI patients.

Objectives: To determine the effects of Cerebrolysin as add-on therapy to the standard medical decompression protocol for nonoperative severe TBI patients.

Methodology: The study employed a retrospective cohort design and included 87 severe TBI patients with a Glasgow Coma Scale (GCS) score of 5 to 7 on admission. In addition to the current medical decompression protocol for severe TBI, 42 patients received 30 ml/day Cerebrolysin for 14 days, followed by a subsequent 10 ml/day dosage for another 14 days. The control group included 45 patients who received the standard decompression protocol only. Primary outcomes evaluated were the proportion of patients achieving a GCS ≥ 9 and Glasgow Outcome Score (GOS) ≥ 4 at Day 21. Secondary outcome measures included 1) Improvement of GCS at Days 7, 14 and 28, 2) GOS at Day 14 and 28, 3) Length of hospital stay (LOS) and, 4) 28-day mortality. Stata MP version 16 was used for data analysis.

Results: Compared to the control group, a significantly higher proportion of patients who received Cerebrolysin treatment achieved a favourable outcome at Day 21 post-TBI (50% vs. 87%; $p < 0.00001$) and GOS ≥ 4 (18% vs. 39%; $p = 0.043$). The mean length of hospital stay was approximately seven days shorter in the Cerebrolysin group (25.61 days vs. 31.92 days; $p < 0.00001$), and a significantly lower proportion of Cerebrolysin patients had a LOS ≥ 30 days (Cerebrolysin: 13%; Control: 51%; $p < 0.0001$). No significant group differences were seen in the 28-day mortality rate.

Conclusion: Cerebrolysin is beneficial for severe TBI patients with nonoperative lesions as evidenced by stronger improvement in GCS/GOS and shorter length of hospital stay than standard treatment alone.

Abst:3574 **The Pattern of Traumatic Brain Injuries in Motorcyclists in Pakistan: A Call for Immediate Action**

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Background:

Pakistan has an increasing incidence of TBI. The majority of them are caused by road traffic accidents in motorbikers. Traumatic brain injury (TBI) is insult and disruption in brain functions due to external force which results in various pattern of injuries. These include brain contusions, extradural hematoma, subdural hematoma, skull fractures, diffuse axonal injury, traumatic sub-arachnoid hemorrhage and intraventricular bleed. In this study we want to know the patterns of TBI in motorbikers in Pakistan.

Objective:

To study the pattern of TBI in motorbikers in Pakistan. This will help in policy making regarding prevention of RTAs and to devise management plans in the hospitals.

Methodology:

It is a cross sectional study in 174 patients >18yrs of age.

Results:

CT brain showed highest frequency of TBI (32.75%) followed by Extradural hematomas (18.96%) and cranium fracture (17.24%).

Conclusion:

Young males bikers are at an increased risk of TBI in Pakistan. The highest incidence is of traumatic brain contusions followed by EDH and skull fractures. There is an increased need of raising awareness regarding safety measures for motorbikers, road safety and implementation of traffic rules.

Abst:3733 **Evolution from Conventional Cranioplasty to 3D -
Reconstructed Acrylic Cranial Implant – An Early Institution
experience at Punjab Institute of Neurosciences Lahore.**

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Abstract:-

Objective:- To evaluate patients having 3D Reconstructed Cranioplasty postoperatively in terms of its cosmetic results and post-operative complications.

Materials & Methods:- It is a retrospective review of 10 patients who underwent 3D reconstructed Cranioplasty using Acrylic cranial implant from Oct 2021 to Jan 2022. Preoperatively these patients were evaluated clinically and radiologically by 3D Reconstructed CT scan brain plain. Post operatively they were evaluated immediately by 3D reconstructed CT scan brain plain to assess the contours and cosmesis, and at 1 week and at 1 month for any post-operative complications.

Results: 7 out of 10 patients had excellent results and showed uneventful recovery. One patient out of ten has temporal dip due to temporalis muscle atrophy, one patient developed wound dehiscence due to improper surgical scar excision which was managed successfully through surgery, one patient developed extradural collection at 9th post op day he was reexplored and remained well. Altogether the final outcome was satisfactory

Conclusions:- While 3D reconstructed cranial implants are used successfully in the HICs, with this study we want to show that they can be used successfully in future in Pakistan which is an LMIC, as well. As it is a unique study using 3D reconstructed skull implants with small number of patients, we need to work on it to improve its technique and develop its skill so maximum number of patients gets benefited.

Key Words:- Cranioplasty, 3D reconstructed Cranioplasty, Acrylic Cranial Implant, Decompressive Craniectomy

Abst:4019 Outcome of Surgical vs Conservative Management of Traumatic Brain Contusion

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ABSTRACT

Objective:

To compare the results of surgically operated vs conservatively treated patients of cerebral contusions due to traumatic brain injury.

Study Design:

Retrospective Study

Materials and Methods:

This comparative study was conducted from January 2012 to December 2014 at the department of Neurosurgery, PGMI Lahore General Hospital, Lahore. A total of 50 patients were included in this study of both gender (male and female) and in the age range of 15-65 years. In our study 20 patients were managed conservatively while other 30 patients were operated for cerebral contusions. The mode of injury in our study was road traffic accidents and falls.

Results:

Mortality rate in surgically managed patients having a GCS 9-12 was very low contrary to the conservatively managed group, similarly the rate of delayed contusion formation and edema was also low in surgically managed patients as compared to those who were managed conservatively.

Conclusion: Surgically managed patients of cerebral contusions in traumatic brain injury has better outcome and decreased hospital stay as compared to conservatively managed patients.

Key Words: cerebral contusion, Traumatic brain injury. Glasgow Coma Scale (GCS)

Abst:4115 **Hinge Craniotomy as an alternative to Decompressive Craniectomy**

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Objective

To evaluate the efficacy of hinge craniotomy in achieving adequate control of intracranial pressure in certain indications as compared to decompressive craniectomy.

Material and methods

In this prospective study, adult patients requiring surgical decompression for TBI (traumatic brain injury), stroke or CVT (cerebral venous thrombosis) from November 2019 to March 2021 were recruited. Data was obtained from patient records, laboratory reports and imaging. Categorical variables were analysed using Fisher's exact test and continuous variables were analysed using Student's t test. ICP, ONSD, preintubation GCS, motor score and status at discharge were analysed using Mann-Whitney U test.

Results

12 patients were recruited in hinge craniotomy (HC) group and 22 patients were recruited in decompressive craniectomy (DC) group. Both groups were comparable in respect to age, sex, preintubation GCS, motor score and pupillary reactivity. In HC group, 10/12 were TBI patients, 1 patient had infarct, 1 patient had CVT. In DC group, 6/22 patients had TBI, 5/22 patients had infarcts, 11/22 patients had CVT. Both groups were comparable in terms of radiological parameters, laboratory parameters, time from onset to surgery, intraoperative complications and postop destination. HC group had comparable decrease in midline shift (4.25mm versus 4.29mm, $p=0.979$) and postoperative basal cistern effacement ($p=0.822$). HC group also had comparable reduction in ICP (14 mmHg versus 28 mmHg, $p=0.079$) and achieved mean postop ICP <10 mmHg. HC group also had comparable reduction in ONSD (0.61 mm versus 0.27 mm, $p=0.169$). Status at discharge was better in DC group (median GCS 13) versus HC group (median GCS 8) with $p=0.002$. No significant difference in complication rates noted.

Conclusion

Hinge craniotomy achieves adequate control of ICP as compared to decompressive craniectomy and avoids need for second surgery.

Abst:4115 b (Español) **CRANIECTOMIA DESCOMPRESIVA BILATERAL TEMPRANA EN PACIENTES CON TRAUMA PENETRANTE DE CRANEO POR PROYECTIL DE ARMA DE FUEGO BIHEMISFERICO: REPORTE DE CASO**

AMBAR ELIZABETH RILEY MOGUEL(1), CAROLINA CARRERA SALAS(2), RICARDO ADRIAN CORTES MONTEERRUBIO(3)

OBJETIVOS

Conocer el impacto que el tratamiento quirúrgico temprano tiene en los pacientes que presentan heridas penetrantes por proyectil de arma de fuego en cráneo, y los factores predictores de resultados.

Material y Metodos

Masculino de 38 años de edad que el día 23.10.21 a las 15:30 h fue herido por proyectil de arma de fuego en cráneo con orificio de entrada en ojo derecho con exposición de masa encefálica en región frontoparietal bilateral e impactos en extremidades. El personal paramédico encontró al paciente con escala coma de Glasgow de 15 puntos, fue trasladado a hospital regional donde se recibe paciente con Glasgow de 8 puntos, se realice manejo avanzado de la vía aérea y se traslada a nuestro hospital para valoración y manejo por Neurocirugía. Se brindó tratamiento quirúrgico 8 horas y media posteriores a la lesión.

Resultados:

Realizamos craniectomía descompresiva frontoparietal bilateral, conservando colgajo óseo sobre la línea media por probable lesión del seno longitudinal superior. Hallamos estallamiento cortical en giro precentral derecho y poscentral izquierdo, retiramos esquirlas óseas y ojiva, realizamos hemostasia y trasladamos al paciente a UCI de donde fue egresado al 5° día a piso de Neurocirugía con estancia de 17 días. Clínicamente egresó con hemiparesia braquiocrural izquierda con fuerza 3/5 en escala de Daniels, traqueostomía y gastrostomía. Continúa en rehabilitación, con Glasgow de 11 puntos, hemiparesia izquierda con fuerza 4/5 en escala de Daniels, tolerando la vía oral.

Conclusion

La craniectomía descompresiva continúa siendo la técnica de mayor uso y con mejores resultados funcionales en este tipo de lesiones. El tiempo en el que se realiza la cirugía también ha demostrado ser un factor importante para la funcionalidad de los pacientes en el posquirúrgico como lo vemos en este caso.

English version available:

Abst:4115b (English) **EARLY BILATERAL BIFRONTAL DICOMPRESSIVE CRANIECTOMY
IN A PATIENT WITH PENETRATING BIHEMISPHERIC GUNSHOT HEAD
TRAUMA: CASE REPORT**

Objective: To know the impact that early surgery has in patients with penetrating gunshot head trauma and to know the factors use as outcome predictors.

Methodology:

38 years old male, in the 23.10.21 at 15:30 suffer a penetrating gunshot head trauma, entrance wound in right eye and brain exposure bilaterally in frontoparietal region. Paramedics report Glasgow of 15 points, he was taken to a regional Hospital were was received with Glasgow of 8 points, orotracheal intubation is performed and later on is brought to our Hospital for Neurosurgery assessment. We performed surgery 8 and a half hours later of trauma.

Results:

A decompressive frontoparietal bilateral craniectomy was performed, with a bone flap in the midline for the risk of Superior sagittal sinus lesion. With brains mass exposure in the right precentral gyrus and left poscentral gyrus, we remove bone shard and bullet, hemostasia and patient went to ICU and then to neurosurgery floor for 17 days. The patient was discharged with left hemiparesia (3/5 in Daniels' scale, traqueostomy and gastrostomy. He has been rehabilitated,now with left strength of 4/5, without tracheostomy

Conclusion: Decompressive craniectomy continues the gold standard for this kind of trauma and with the best outcomes register. Time is an important factor for later functionality and recovery.

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Key Words : Severe traumatic brain injury (STBI), Critical Pulmonary Infection Score (CPIS), Intracerebral hematoma (ICH), Subarachnoid hemorrhage (SAH), Diffuse axonal injury (DAI)

Abstract

INTRODUCTION:

Traumatic brain injury patients present in ER with a variable conscious status depending upon severity of injury. The process of aspiration starts from the scene of trauma as the patients with TBI and chest trauma have higher rates of aspiration pneumonia. The primary management of aspiration pneumonia is only to halt the sequence of this dreadful complication.

METHODS:

We conducted a prospective study to assess the impact of bronchoscopic lavage and aggressive chest physiotherapy on CPIS of patients with TBI in Neurocritical Unit of Jinnah Hospital, Lahore. Patients with STBI who met the inclusion criteria were enrolled in the study from January 2019 to December 2019. Patients of both genders, age ranging from 05-70 Yrs were included in study. Patients with polytrauma were excluded from study.

RESULTS:

48 patients who met the criteria were enrolled in study. 8 patients expired before 7 days and were omitted from the study. 88% were male and 12 % were females. Out of 40 patients, 30 were ventilated and 10 were not ventilated. Bar chart for CT findings was made which showed contusion as most common finding. Out of 40 patients, 18 underwent surgical intervention with Decompressive hemicraniectomy being the most commonly performed procedure. Among mechanism of trauma, bike vs. bike was most common. Out of 40 patients, 32 patients who met the inclusion criteria underwent bronchoscopy. 8 patients out of 32 had more than two sessions of bronchoscopy

CONCLUSION:

As CPIS is an important indicator for pneumonia in ICU, the importance of standardized chest care with the help of bronchoscopic lavage and chest physiotherapy in keeping CPIS on lower side can prevent patients from developing life threatening pneumonia.

Abst:5100 **Right Malignant Cerebral Infarct Following Mild Head Trauma in a Healthy Child. Case Report**

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Universidad San Francisco de Quito

Senior neurosurgery resident

Introduction:

Mild head trauma is common in childhood; however, post-traumatic stroke is extremely rare and risk factors are identified in most cases.

Case Report:

A 3-year-old male presenting headache, drowsiness, irritability, and left upper limb weakness was admitted after 72 hours of mild head trauma. Imaging showed malignant infarction of right middle cerebral artery and decompressive hemicraniectomy was performed achieving gradual neurological recovery.

Discussion:

The intracranial vessel anatomy changes from prenatal life to adulthood, which could predispose to post-traumatic ischemic stroke. This is the first case reporting posttraumatic malignant cerebral infarct in a healthy child due to minor head trauma.

Conclusion:

Post-traumatic ischemic stroke in children has been described in the literature, but the pathogenesis remains unclear. The ischemia pattern, the trauma time relation, and the exclusion of other stroke causes, such as arterial dissection and cardio-embolism, lead us to conclude that this association is not coincidental.

Keywords: Mild Head Trauma; Children; Stroke; Malignant Cerebral Infarct; Decompressive Craniectomy

Abst:5105 Traumatic scalp cirroid aneurysm

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Abstract

This case report presents a rare post-traumatic complication that occurs in the scalp area and is called

‘Scalp Cirroid Aneurysm’.

A male patient, 27 years old, presented 1 month later after he fell on the head. The pulsatile mass was on the left parieto-occipital area, about 4*5 sm. in size, with a soft consistency and smooth borders. It had a volume decrease after digital pressure and auscultation revealed some bruits. After completing the CT scan of the head, which showed no intracranial changes, he was gone through a puncture of the mass, and about 20 ml were extracted. He was hospitalized at Semey University Medical hospital 2 months later his initial head trauma. Selective angiography through the external carotid artery was performed (Fig. 1) and revealed a scalp cirroid aneurysm with a pseudoaneurysm within it. The main feeder was from the occipital branch of the external carotid artery. Video one shows intraoperative coil and onyx embolization, which was performed in order to decrease intraoperative blood loss. 3 days after embolization, he was gone through open resection of the mass with the pericranial component, the nidus was located in galeal aponeurosis. The patient was discharged home on postoperative day 6 with no complaints.

Discussion:

Cirroid aneurysms (CAs) of the scalp are rare subcutaneous arteriovenous fistulae (AVF).

They are also referred to as aneurysma serpentinum, aneurysm racemosum, or plexiform angioma. The

reported number of traumatic CA cases is about 200 in the last 15 years [1]. There are two theories, which have been proposed to explain the pathogenesis of traumatic CAs. In the laceration theory, the fistula forms because of simultaneous lacerations of the artery and adjacent vein. In the disruption theory, the rupture of vasa vasorum in the arterial wall leads to the rapid proliferation of endothelial cells, resulting in angiogenesis and creating anomalous vascular connections with adjacent veins. In addition, embolization with subsequent open resection is considered the best treatment option, because there was a high incidence of transient scalp pain after surgical excision only and residual mass after embolization only treatment modality

Conclusion: This case report demonstrates complete excision of post-traumatic scalp cirroid aneurysm after partial embolization.

Abst:6409 **Evaluation of therapeutic role of early magnesium sulphate infusion to prevent secondary brain injury**

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Abstract

Background: Acute traumatic brain injury is a leading cause of death and disability in young adults particularly in middle and low income settings. Numerous pharmacological and non-pharmacological tools have been investigated and considered as potential mechanisms for improving neurological outcomes in restricted resourced countries. Magnesium has been considered as one of these potential therapeutic tools because of its regulatory activity on NMDA-receptors, calcium channels and neuron membranes to ameliorate neuro excitotoxicity as a result of secondary brain injury. After a subset of successful animal studies, clinical efficacy of magnesium sulphate needs to be evaluated along with its timing of administration and dosage for evaluation of an effective clinical response.

Objectives: To quantify the effect of early magnesium administration on mortality and morbidity in patients with acute traumatic brain injury. Study design and Selection criteria: randomised controlled trial with Non-Probability Consecutive Sampling.

Results: Among the 69 enrolled patients (35 in the magnesium group and 34 in the placebo group), the mean (\pm SD) age was 29 ± 13 years, 40.6% were women and 59.4% were male, and the pretreatment mean glasgow coma score (range, 3 to 15, with lower scores indicating greater neurological deficits) was 11.3 ± 2.8 in patients presenting with TBI. Post treatment group (Magnesium exposed) receiving magnesium within the first hour of presentation following TBI had a mean GCS of 14.34 ± 2.19 . Mean Glasgow outcome score for 6 months following TBI for exposed group was 4.77 ± 0.64 , however the non-exposed group had 3.50 ± 1.54 and a P-value of 0.00003, significance of which clearly states that the administration of $MgSO_4$ within the first hour of presentation may have a significant impact on the prevention of secondary brain injury.

Conclusion: The administration of $MgSO_4$ within the first hour of presentation may have a significant impact on the prevention of secondary brain injury.

Abst:6332 **Acute TBI-related hypopituitarism :AN UNDERESTIMATED CONDITION**

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INTRODUCTION:

Hypopituitarism after moderate or severe traumatic brain injury (TBI) is usually underdiagnosed and therefore undertreated. This neuroendocrine dysfunction can cause both short-term and long-term morbidity resulting in a cognitive, physiological, and behavioral decline. We present a case of a patient diagnosed with hypopituitarism after TBI and treated appropriately with favorable outcome.

CASE presentation:

We present the case of a 22-years-old patient , victim of a road traffic accident with severe traumatic brain injury. GCS was 7/15 upon admission with right anisocoria. The brain CT scan showed a right temporal depressed fracture with a 3 cm supra and infratentorial extradural hematoma. Removal of the depressed fracture, evacuation of the hematoma and hemostasis of the lateral sinus laceration was performed. Immediately after surgery, the patient presented an hemodynamic impairment and diabetes insipidus. A cerebral CT scan showed a sphenoidal hemosinus and hemorrhagea within the sella turcica. Hormonal assessment concluded to severe panhypopituitarism wich was reversed by an adequate hormonal substitution therapy with a favourable outcome. A cerebral MRI was performed one month after the trauma, showing a complete resorption of the sellar hematoma, an integrity of the pituitary gland and the pituitary stem. Hormonal deficiency was ruled out 3 months after trauma and medical substitution was stopped.

Conclusion: Post-traumatic hypopituitarism is a serious and potentially debilitating condition that is likely under-recognised and under-diagnosed. The symptoms are potentially reversible after adequate hormonal substitution. Therefore it 's crucial to edify clinicians on this condition, outline the screening criteria and methods for hypopituitarism after traumatic brain injury, and bring awareness to the chronic effects.

Abst:6333 **CERVICAL PNEUMORACHIS COMPLICATING A HEAD TRAUMA: About 2 CASES AND REVIEW OF THE LITERATURE**

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INTRODUCTION:

Pneumorachis (PR), defined as the presence of air within the spinal canal, can be broadly classified as traumatic, iatrogenic, or spontaneous. It is a very rare entity to occur after a major trauma. Herein we describe 2 rare cases of cervical pneumorachis secondary to a skull base fracture.

Case report 1:

We report the case of 22 years-old patient, involved in a road traffic accident who had traumatic brain injury. The GCS was 13/15 upon admission. A cerebrospinal rhinorrhea (CSR) occurred 24 hours after traumatism. The cerebral CT scan showed a bifrontal and subarachnoid pneumocephalus with an anterior basilar skull fracture. The cervical spine CT revealed a significant PR within the cervical spine extended from the cervico-occipital junction to C7. The evolution was favorable after medical treatment combining Acetazolamide and anti pneumococcal vaccination. A resolution of the CSR was obtained the 5th day after accident.

Case report 2:

It is about a 50 years-old man who sustained a road traffic accident resulting in a severe traumatic brain injury. The patient was comatose. Brain CT scan showed a right hemispheric acute subdural hematoma and brain swelling with midline shift of 12 mm and temporal engagement. There was a diffuse pneumocephalus extended to the anterior cervical epidural space up to C4 with translabyrinthine fracture of the left tympanic bone. A decompressive craniectomy was performed with favourable outcome after 33 days of neuroreanimation.

CONCLUSIONS:

Pneumorachis is a relatively rare phenomenon, where air enters the spinal canal. Because of its rarity, evaluation and management of this condition is poorly understood and needs a meticulous study of the CT scan for better assessment.

Abst:6316 **Retrospective Study of Clinical Characteristics of Traumatic and Non-Traumatic Chronic Subdural Hematoma.**

Monali Patil

Abstract

Background

Chronic subdural hematoma (SDH) is a common entity but the differences in traumatic and non-traumatic chronic SDH still remains unclear. In this study, we analyzed the clinical characteristics and the outcome of surgery in chronic SDH patients with and without head injury.

Methods: Retrospective study was conducted at our institute of patients of chronic SDH who underwent surgery (burr hole / craniotomy) from October 2017- January 2022. The patients were divided into head trauma group and non trauma group. Chi square test and t – test were used to analyze differences in clinical features, comorbidities and outcome of surgery. Multiple linear regression analysis was performed to analyze the relationships between clinical characteristics.

Results: 80 patients of chronic SDH were studied, out of which 39 (48.75%) patients had a history of head trauma and 41 (51.25%) did not. Mean age of patients with head trauma was 57 years, while that of patients without head trauma was 56 years. Hypertension was more common in non trauma group as compared to trauma group. Headache was more commonly associated with non trauma group whereas hemiplegia/hemiparesis was more common in trauma group. Giddiness occurred in 8.75 % of patients with trauma and 7% in patients of nontrauma. Mean length of hospital stay in patients with trauma was 13 days and 15 days in nontrauma group.

Conclusion: In our study, there were some major differences in clinical characteristics of patient with and without head trauma. Statistically, with standard surgery in both groups, outcome was not significantly different in the two groups.