



Fig. 1: Day 1 panfacial fracture in a pediatric patient



Fig. 2: Post-surgery panfacial fracture in a pediatric patient

hospital and later transferred to Hospital Pediátrico Baca Ortiz in Quito, Ecuador.

Due to the accident, the patient showed a severe facial trauma with a panfacial fracture, loss of frontal bone substance, and exposure of meninges without evidence of loss of cerebrospinal fluid. Furthermore, the patient lost his right eyeball. We saw a complete loss of nose tissue, multifragmentary fracture of the lower maxilla, and pulmonary contusion that remained for 9 days since the patient entry with the support of a mechanical ventilation by tracheostomy in a controlled assisted mode. After, he was switch to spontaneously breathe and then the medical team decided to place oxygen support with a mask on him.

Since the admission and due to the facial trauma that the patient presented, he had have remained orally suspended feeding. Due to the injuries caused by the facial trauma at the 3rd day of admission, it was impossible to place a nasogastric tube. The input started through total parenteral feeding nutrition, and on the 5th day of hospitalization, a gastrostomy was performed in the patient, and the feeding was initiated with a good patient tolerance, which was increased to complete basal needs and withdrawal to parenteral nutrition contribution on the 11th day.

The emergency management was carried out due to the loss of the upper airway with the performance of tracheostomy; therefore, the patient received mechanical ventilation in controlled assisted mode. Besides, the patient was in a hypovolemic shock, which required the administration of boluses of saline solution, red blood cell concentrates,

fresh frozen plasma, and cryoprecipitates. These improved his hemodynamic state and it maintained low blood pressure values normal. The intravenous support started with vasoactive medications such as norepinephrine. Blood pressure was achieved over the 50th percentile for age and sex and maintained with norepinephrine support for 11 days more. The doses of medications were regulated until arterial pressure kept without the support of vasoactive agents.

After the hemodynamic stabilizing of the patient, the surgical management was made.

The early phase of the trauma was carried out with the performance of a surgical debridement every 72 h. After that time, the surgical management and surgical debridement were performed to the patient next to the surgical repair of the dural defect with muscle fascia lata flap from the right hip, and then, the right orbit was emptied for irreversible tissue injuries. The mandibular fixation, cutaneous flap approximation, surgical fixing of osteo muscle, and cutaneous defect were debridement of devitalized tissue and made a flap plasty.

Six days later after the accident, we proceeded to perform a mandibular reduction and fixation with double wire rod placement with circumferential fixation and Ernst type wiring plus fixation in compression zone with wiring.

Fifteen days after the accident, a rigid fracture fixation was made with placement of circumdental wire, reduction of maxillary fracture, and installation of a 3-hole straight plate in the nasomaxillary region. The manual reduction of the fracture in the mandibular body was with a placement of a straight 5-hole plate. Finally, after 27 days, the rotation flaps were made and plated.

DISCUSSION

In the treatment of this patient, an attention plan was formulated that began with the hemodynamic stabilization and then continued with the surgical procedure by plastic surgery. The surgical team saw the loss of part of the frontal bone, loss of the right eyeball, and total loss of tissues in the nose with the consequent exposure of the turbinates; therefore, all radiological studies were performed and panfacial fractures were diagnosed.

Multiple surgical debridements were performed in the area of injury, and the right eyeball was removed because the tissues were damaged, and it was impossible to keep it. After completing the procedure, the maxillary and mandibular fixations were achieved with anatomical reduction. The factors such as the existence of the patient's injury, the anatomical site, the complexity of the damage, and time were analyzed because in pediatrics population, the bones are growing [2]. Therefore, we used a thinner wire to tie the arch bar to the dentition; although this technique in children between 2 and 5 years can cause the resorbed teeth; in the future, it was necessary because the patient presented multifragmental fracture of the mandible [2]. It is necessary to keep the mandibular fixation even though feeding is compromised by avoiding biting and eating tough foods such as meat, nuts, and carrots [10].

The surgical treatment was prioritized in maintaining the function of each structure and facial harmony although it was challenging due to the loss of tissues and organs such as the eyeball.

CONCLUSION

The severe facial pediatric trauma should be managed by many medical specialists such as emergency, plastic surgery, neurosurgery, dentistry, pediatrics, and radiology, which means that the patient must be attended at a third-level hospital with highly specialized staff and technical equipment. Facial injuries in children are different than in adults; therefore, it should be taken in consideration, the grown and development including anatomical, physiological, and psychological factors because there is a risk of facial deformities caused by these injuries.

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CONSENT FOR PUBLICATION

Written informed consent was obtained from patient legal guardians for publication of this case report and any accompanying images. A copy of the written consent is available for review by the editor-in-chief of this journal.

DECLARATION OF CONFLICTS OF INTEREST

The authors declare that they have not had conflicts of interest.

REFERENCES

- Gonzalez E, Pedemonte C, Vargas I, Lazo D, Pérez H, Canales M, *et al.* Facial fractures in a reference center for level I traumas: Descriptive study. *Rev Esp Cir Oral Maxilofac* 2015;37:65-70.
- Singh RB, Prakash JV, Chaitan SN, Tandur PS, Kokate S. Maxillofacial

injuries in the pediatric patient: An overview. *World J Dent* 2011;2:77-81.

- Yadav V, Bansal P, Mittal A, Singh SK. Global regulatory aspects of wound care and burn dressings. *Asian J Pharm Clin Res* 2018;11:516-35.
- Paul M. Facial injuries. In: McCarthy J, editor. *Plastic Surgery*. Vol. 2. ???; ???; 1990. p. 867.
- Alvarez C, Sanchez R. Fracturas y procesos infecciosos en la cara. *Radiología* 2011;53:23-9.
- Andres C, Allan M, Camila F, Hernan R, Alex V, Ignacio G, *et al.* Manejo del trauma maxilofacial en la atención de urgencia por no especialistas. *Rev Med Chile* 2017;145:1038-46.
- Neira A, Eslava C. Manejo del trauma frontal. Revisión de literatura y reporte de casos. *Rev Med* 2010;18:248-65.
- Joseph JM, Glavas IP. Orbital fractures: A review. *Clin Ophthalmol* 2011;5:95-100.
- Adam AA, Zhi L, Bing LZ, Xing WU. Evaluation of treatment of zygomatic bone and zygomatic arch fractures: A retrospective study of 10 years. *J Maxillofac Oral Surg* 2012;11:171-6.
- DoĀzan MS, Maharani DA, Kusdhany LS, AdĀatman M, Yavuz I. Post-trauma root fracture in teeth with incomplete root development: A case report. *Asian J Pharm Clin Res* 2017;10:1-3.

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