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E**A case study report on Cephalohematoma****Kowsalya Devi*, Vishnupriya, Jeyapriya, Abarna, Medona Judith**

Department of Pharmacy Practice, Doctor of Pharmacy, ArulmiguKalasalingam College of Pharmacy, Anand Nagar, Krishnankovil, Tamil Nadu, India.

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R**ABSTRACT:**

A Cephalohematoma is an accumulation of blood under the scalp, specifically in the sub-periosteal space. During the birthing process, shearing forces on the skull and scalp result in the separation of periosteum from the underlying calvarium resulting in the rupture of blood vessels. Cephalohematoma is a sub-periosteal hemorrhage that does not cross suture lines. It occurs in approximately 1 to 2 % of live births, more commonly with forceps or vacuum delivery. In the pediatric department, a 46-day-old male baby was admitted to the hospital with complaints of soft swelling over the head since birth, the swelling size increased last 4 days. Slightly high doses of Vitamin K have been prescribed to the patient. Leave the area alone and give the body time to reabsorb the collected fluid.

Corresponding author:

Ms. Kowsalya Devi
ArulmiguKalasalingam College of Pharmacy,
Anand Nagar, Krishnankovil,
Tamil Nadu, India.
Tel: +91-7904566745
E. Mail I.D.: kowsalyadevi1721@gmail.com

INTRODUCTION:

A Cephalohematoma is an accumulation of blood under the scalp, specifically in the Subperiosteal space. During the birthing process, shearing forces on the skull and scalp result in the separation of the periosteum from the underlying calvarium resulting in the rupture of blood vessels [1-3]. Cephalohematoma is a subperiosteal hemorrhage that does not cross suture lines. It occurs in approximately 1 to 2 % of live births, more commonly with forceps or vacuum delivery [4,5]. In general, it is a benign condition not requiring specific therapy. Most Cephalohematomas resolve within a few weeks to months, depending on their size. Some may begin to calcify at the end of the second week. Complications are uncommon but may include hyperbilirubinemia, late-

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onset anemia, and skull fracture^[6]. The bleeding is gradual; therefore, a cephalohematoma is typically not immediately evident at birth^[7]. A cephalohematoma develops during the following hours or days after birth, with the first one to three days of birth is the most common age of presentation^[8]. Here we are presenting a case study on Cephalohematoma with clinical important details, and diagnostic and treatment approaches of the concerned case discussed below. The objective of this case study is to analyze the case using relevant theoretical concepts and to describe an individual's clinical situation in detail.

Table 1. The vital signs.

Parameters	Observed value	Normal value
Heart Rate	132 beats/min	100-160 beats/min
Respiratory Rate	32 beats/min	30-60 beats/min
Temperature	98.6 °F	98.6 °F
Haemoglobin	9.6 ↓	10.7-17.1 g/dL
Total RBC count	3.03 ↓	3.10-5.30 millions/mm ³
Platelet count	6,22000↑	1,5-4.5 lakhs/mm ³
RBS	61 ↓	70-140 mg/dL
Total Bilirubin	1.0	0.5-1.0 mg/dL
Direct Bilirubin	0.7↑	Up to 0.3 mg/dL
Total protein	5.8 ↓	6.0-8.0g/dL
PT	16.34↑	11-13.5 s
INR	1.24↑	0.8-1.1

OTHER INVESTIGATIONS:

The MRI data:

It was found to be 5.1 × 0.8 × 6.1 cm Cephalohematoma seen in the vertex region.

USG – Cranium:

Large hypoechoic collection in parieto occipital region.

TREATMENTS:

Day 1 - Initially the child was treated with Inj. Vitamin K 2 mg single dose given in IM route.

Day 2 - No further progression of swelling. No H/O Tenderness. Inj. Vitamin K 2mg OD given in IV route. Diffusion non-tender, boggy swelling present over parieto occipital region.

Day 3 - No new complaints seen. Request for discharge. Injection of Vitamin K 2 mg OD given in IV route.

Day 4 - Patients get discharge with Iron Drops 1ml OD for a month.

OUTCOME AND FOLLOW UP:

Child's condition was stabilized with supportive management with more precaution. A parent was advised to review after 1 month in outpatient departments.

CASE REPORT:

In the pediatric department, a 46 days old male baby was admitted to the hospital with the complaints of soft swelling over the head since birth, the swelling size increased in the last 4 days. Past medical history of the child was history of perinatal asphyxia 3 days after the baby developed Cephalohematoma. Natal history of the child's mother undergoes forceps delivery (delivery done by forceps/ suction cup). Height of the child was 59 cm, the weight of the child was 4.3 kg, and head circumference of the child was 37 cm. Family history was non-consanguinity marriage. After admission in ward baby undergone general examination.

Baby cry and activity was normal, pink in color, hydration fair and feeds well.

GOALS OF THERAPY:

- To improve quality of life
- To reduce the swelling
- To normalize the hemoglobin level
- To normalize the Vitamin K level which helps in synthesis of protein involved in hemostasis.

DISCUSSION:

Cephalohematoma is a typically harmless condition that causes blood to pool under a newborn's scalp after a difficult vaginal delivery. Pressure during childbirth, including the use of vacuum extractors, can break blood vessels in the scalp. Cephalohematoma is a condition that most commonly occurs during the birthing process and rarely in juveniles and adults following trauma or surgery. External pressure on the fetal head results in the rupture of small blood vessels between the periosteum and calvarium. External pressure on the fetal head is increased when the head is compressed against the maternal pelvis during labor or from additional applied external forces from instruments such as forceps or a vacuum extractor that may be used to assist with the birth.

ETIOLOGY:

The etiology of cephalohematoma is the rupture of blood vessels crossing the periosteum due to the pressure on

the fetal head during birth. During the birthing process, pressure on the skull from the rigid birth canal or the use of ancillary external forces such as forceps or a vacuum extractor can result in the rupture of these small and delicate blood vessels resulting in the collection of sanguineous fluid. Factors that increase pressure on the fetal head and ultimately increase the risk of the neonate developing a cephalohematoma include:

- A prolonged second stage of labor.
- Macrosomia, or increased size of the infant relative to the birth canal.
- Weak or ineffective uterine contractions.
- Abnormal fetal presentation
- Instrument-assisted delivery with forceps or vacuum extractor.
- Multiple gestations.
- Presentation of occiput in transverse or posterior position during delivery.
- Cesarean section was initiated following the first stage of labor.

The above-listed factors contribute to the traumatic impact of the birthing process on the fetal head. Aside from the birthing process, cephalohematoma may rarely occur in adults or juveniles following trauma or surgery.

EVALUATION:

The diagnosis of cephalohematoma is largely a clinical one. Diagnosis is based on the characteristic bulge on the newborn's head that does not cross cranial suture lines. The bulge may be initially firm and become more fluctuant as time passes. In contrast to caput succedaneum and subgaleal hematoma, cephalohematoma becomes most apparent in the first one to three days following birth rather than being immediately apparent. Some providers may request additional tests, including skull x-rays or computed tomography (CT) scans of the head if there is a concern for an underlying skull fracture or head ultrasound if there is a concern for intracranial hemorrhage. The newborn should be monitored closely for the neurologic deficit, as this could suggest that an intracranial bleed is present and requires further investigation. Infants should be evaluated for bleeding diathesis, such as von Willebrand disease, which may have predisposed the infant to develop cephalohematoma.

TREATMENT AND MANAGEMENT:

Treatment and management of cephalohematoma are primarily observational. The mass from a cephalohematoma takes weeks to resolve as the clotted

blood is slowly absorbed. Over time, the bulge may feel harder as the collected blood calcifies. The blood then starts to be reabsorbed. Sometimes the center of the bulge begins to disappear before the edges do, giving a crater-like appearance. This is the expected course for the cephalohematoma during resolution.

One should not attempt to aspirate or drain the cephalohematoma unless there is a concern for infection. Aspiration is often not effective because the blood has clotted. Also, entering the cephalohematoma with a needle increases the risk of infection and abscess formation. The best treatment is to leave the area alone and give the body time to reabsorb the collected fluid.

Usually, cephalohematomas do not present any problem to a newborn. The exception is an increased risk of neonatal jaundice in the first days after birth. Therefore, the newborn needs to be carefully assessed for a yellowish discoloration of the skin, sclera, or mucous membranes. Noninvasive measurements with a transcutaneous bilirubin meter can be used to screen the infant. A serum bilirubin level should be obtained if the newborn exhibits signs of jaundice.

CONCLUSION:

There is no particular treatment for cephalohematoma. Cephalohematoma resolve on their own. It can take 2 weeks to 3 months for complete resolution. Leave the affected area untouched and give the body enough time to reabsorb the collected fluid.

As per the Indian Academy of Pediatrics, single dose of Vitamin K at 0.5 to 1 mg, i.m. administration to all the newborns should be prescribed. But in this case, dose is inappropriate, slightly high dose of Vitamin K 2 mg had been prescribed.

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