



# Surgical incision-induced sciatic nerve injury in a newborn during caesarean delivery: a case report

Sezaryen doğum sırasında yenidoğanda cerrahi insizyona bağlı siyatik sinir yaralanması: Olgu sunumu

Zaheer Ahmed Gill,<sup>1</sup> Saeed Bin Ayaz,<sup>1</sup> Muhammad Ikram,<sup>1</sup> Nadeem Ahmed<sup>2</sup>

<sup>1</sup>Armed Forces Institute of Rehabilitation Medicine, Abid Majeed Road, Rawalpindi, Pakistan

<sup>2</sup>Combined Military Hospital, Abbottabad, Pakistan

Received / *Geliş tarihi:* January 2014 Accepted / *Kabul tarihi:* July 2014

## ABSTRACT

Caesarean deliveries are associated with an increased risk of injuries to the newborn and the mother. Lacerations in the newborn are the common injuries which primarily occur on face, head, and ear. Herein, we report a newborn case of laceration at the hip which resulted in sciatic nerve injury caused by surgical incision of caesarean section. The newborn was a term baby after an uncomplicated pregnancy. He had his right buttock nicked during the caesarean section. Later on, the baby presented with a flail right leg associated with foot drop noticed at the age of one month and was found to have sciatic nerve injury, as assessed by nerve conduction studies and electromyography.

**Keywords:** Caesarean delivery; sciatic nerve injury; fetal laceration.

## ÖZ

Sezaryen doğumlar, yenidoğan ve anne için yaralanma riskinde artış ile ilişkilidir. Yenidoğandaki laserasyon başlıca yüz, baş ve kulakta gelişen, en sık görülen yaralanmalardır. Bu yazıda, cerrahi sezaryen doğum insizyonunun neden olduğu siyatik sinir yaralanması ile sonuçlanan kalçada laserasyon görülen yenidoğan olgu sunuldu. Yenidoğan komplike olmayan gebelik sonrasında term bebektir. Sezaryen sırasında sağ kalçasında çentik oluştu. Daha sonra bebekte bir aylıkken ayak düşüklüğü ile ilişkili yelken sağ ayak gelişti ve sinir iletim çalışmaları ve elektromiyografi ile değerlendirildiği üzere, siyatik sinir yaralanması olduğu tespit edildi.

**Anahtar sözcükler:** Sezaryen doğum; siyatik sinir yaralanması; fetal laserasyon.

In recent years, child deliveries via caesarean section have become increasingly common.<sup>[1]</sup> Caesarean section, even when elective, holds serious hazards for mother and baby.<sup>[2]</sup> Accidental fetal lacerations can occur in 0.1 to 3.1% of caesarean deliveries;<sup>[3-6]</sup> however, a case with sciatic nerve injury has not been reported to the best of our knowledge. Herein, we present an infant who developed sciatic nerve injury due to the surgical incision during caesarean delivery.

## CASE REPORT

A four-month-old infant was referred to our institute for electrodiagnostic (EDX) evaluation of flail right leg. The mother had an uneventful pregnancy. During elective caesarean section under spinal anesthesia at

full term, the right buttock of the infant was accidentally nicked by the surgeon. His parents were not informed about the event and he was discharged soon after birth with a recommendation of continuous oxygen support which was not available at that clinic.

The parents took the infant to a tertiary care hospital where his diaper was opened and a bleeding wound on his right gluteal region was noticed. The infant had peripheral cyanosis due to cold weather and remained on ventilatory support for two weeks for reasons neither known to the parents nor documented in the child's medical papers. After discharge, the child was taken home. He remained uneventful until one month of age, when his mother noticed that he kept his right leg in a

flail posture and had a right-sided foot drop. She took the child to a couple of hakims (traditional herbal medicine practitioners) who gave her few medicines and comforted her by saying that the deformity would settle with normal development. After two months, she consulted a physiotherapist who performed therapeutic exercises and electrical muscle stimulation of ankle dorsiflexors on the right side. When no recovery was noticed after a month of physiotherapy sessions, the physiotherapist advised electrodiagnostic (EDX) evaluation of the right leg.

On presentation to us at four months of age, the child had a right foot drop which became more conspicuous, when he was held suspended by his shoulders (Figure 1). There was an L-shaped surgical scar over his right gluteus maximus extending to the midline (Figure 2). The infant did not move his right foot at all and had a negative withdrawal response to the pin prick in the distribution of the right sciatic nerve. The mother was informed about the procedure and taken verbal informed consent.

We performed EDX on the same day using the XLTEK Neuromax 1004 electromyography (EMG) (Xltek, Ontario, Canada) through surface electrodes for nerve conduction studies (NCS) and concentric needle electrodes for EMG. Nerve conduction studies showed unequivocal motor responses in the right common peroneal and tibial nerves and unequivocal sensory response in the right sural nerve. Motor NCS of femoral nerve on the right and common peroneal nerve and tibial nerve on the left was normal. Sensory NCS for the left sural nerve was also within normal limits.



**Figure 1.** View of the infant showing the right-sided foot drop.

Electromyography showed fibrillation potentials and positive sharp waves (denervation potentials) without any voluntary activity in tibialis anterior, extensor hallucis longus, peroneus longus, medial head of gastrocnemius, and short head of biceps femoris on the right side. The long head of the right biceps femoris showed large polyphasic motor unit action potentials with decreased recruitment and absence of denervation potentials. Rectus femoris and adductors on the right showed normal potentials and pattern. The EMG of the corresponding muscles on the left side was also normal.

Based on the patient history, clinical examination and EDX findings, the infant was diagnosed to have injury to the right sciatic nerve proximal to right biceps femoris. The patient was sent back to the referring physiotherapist for continuation of exercises and EMS. Unfortunately, he lost to follow-up.

## DISCUSSION

Caesarean section is an essential and life-saving mode of delivery in certain circumstances; however, it poses some risks to the mother and the child. Major sources of maternal morbidity and mortality are sequelae of surgical injuries to the bladder, ureter and bowel, infection, thromboembolic disease, and anesthetic complications.<sup>[7,8]</sup> The possible risks to the baby include skin laceration, cephalhematoma, clavicular, and skull fractures, brachial plexus injury, and facial nerve palsy.<sup>[8,9]</sup>

The most commonly reported complication of caesarean section is fetal laceration.<sup>[9]</sup> While most



**Figure 2.** View of the infant showing an L-shaped scar of surgical nick above the right gluteus maximus extending to the midline.

of the lacerations remain superficial, some are deep or large enough to need suturing or plastic surgery repair.<sup>[3,4]</sup> Largely, lacerations occur on the face, head, and ear, and nearly a third occurs at the back, buttocks, leg, and ankle.<sup>[10]</sup> Caesarean section in the emergency setting, abnormal presentation, low transverse uterine incision, and inexperience of the surgeon are few reported risk factors.<sup>[3-5,11,12]</sup> The risk of lacerations may be reduced by using blunt instruments, moving the wall of uterus away from the fetus before making an incision and taking away abdominal wall retractors before delivery.<sup>[10]</sup>

To the best of our knowledge, injury to the sciatic nerve due to fetal laceration has not been reported in the literature. Our case is the first report of such an incident. In a suspected sciatic nerve injury, NCS/EMG has an invaluable role in identifying location of the lesion, magnitude of injury, and assessment of recovery.

Treatment of nerve injury depends on the mechanism and extent of injury. Injuries which are close and result from low-energy impact usually recover spontaneously and the main goal is to relieve pain, prevent long-term deformities, and improve nerve repair.<sup>[13,14]</sup> Common management tools are electrical stimulation of the affected muscles, therapeutic exercises, analgesics, neuroprotective vitamins, orthotic devices, and gait aids.<sup>[14,15]</sup> Furthermore, surgery is indicated, if the nerve is seen or expected to be divided or severely damaged or if the recovery is inappropriately delayed and the diagnosis is in doubt.<sup>[13]</sup>

In conclusion, our case is a caution to the surgeons who freely recommend caesarean section and also to the mothers who opt for it. An elective caesarean section should not be scheduled, unless there is a strict medical indication. Any injury or distress to the child which may occur due to surgical delivery which may or may not be preventable should be promptly treated based on the current guidelines. Being aware of this risk, particularly in situations where risk factors are present or elective caesarean section is being considered, may help patients make more informed decisions concerning the delivery and in wellbeing of the infant.

#### Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

#### Funding

The authors received no financial support for the research and/or authorship of this article.

#### REFERENCES

1. C-section rates around globe at 'epidemic' levels. Available from: [http://www.today.com/id/34826186/ns/today-today\\_health/t/c-section-rates-around-globe-epidemic-levels/#.UkhasIZmim4](http://www.today.com/id/34826186/ns/today-today_health/t/c-section-rates-around-globe-epidemic-levels/#.UkhasIZmim4) [Updated 2010 Jan 12; Cited 2013 Aug 23].
2. Wagner M. Choosing caesarean section. *Lancet* 2000;356:1677-80.
3. Haas DM, Ayres AW. Laceration injury at cesarean section. *J Matern Fetal Neonatal Med* 2002;11:196-8.
4. Dessole S, Cosmi E, Balata A, Uras L, Caserta D, Capobianco G, et al. Accidental fetal lacerations during cesarean delivery: experience in an Italian level III university hospital. *Am J Obstet Gynecol* 2004;191:1673-7.
5. Smith JF, Hernandez C, Wax JR. Fetal laceration injury at cesarean delivery. *Obstet Gynecol* 1997;90:344-6.
6. Okaro JM, Anya SE. Accidental incision of the fetus at caesarian section. *Niger J Med* 2004;13:56-8.
7. Wiener JJ, Westwood J. Fetal lacerations at caesarean section. *J Obstet Gynaecol* 2002;22:23-4.
8. Landon MB. Vaginal birth after cesarean delivery. *Clin Perinatol* 2008;35:491-504.
9. Petrović O, Bilić IB. Birth trauma-obstetric view. *Gynaecologia et Perinatologia* 2008;17:68-72.
10. Fetal lacerations associated with cesarean section. PA-PSRS Patient Safety Advisory, Vol. 1, No. 4. Harrisburg: Pennsylvania Safety Authority; 2004.
11. Puza S, Roth N, Macones GA, Mennuti MT, Morgan MA. Does cesarean section decrease the incidence of major birth trauma? *J Perinatol* 1998;18:9-12.
12. Gerber AH. Accidental incision of the fetus during cesarean section delivery. *Int J Gynaecol Obstet* 1974;12:46-8.
13. Warwick D, Srinivasan H, Solomon L. Peripheral nerve disorders. In: Solomon L, Warwick D, Nayagam S, editors. *Apley's System of Orthopaedics and Fractures*. 9th ed. London: Hodder Arnold; 2010. p. 269-86.
14. Roghani RS, Rayegani SM. Basics of peripheral nerve injury rehabilitation. In: Rayegani SM, editor. *Basic Principles of Peripheral Nerve Disorders*. InTech; 2012. Available from: <http://www.intechopen.com/books/basic-principles-of-peripheral-nerve-disorders/basics-of-peripheral-nerve-injury-rehabilitation>.
15. Martínez de Albornoz P, Delgado PJ, Forriol F, Maffulli N. Non-surgical therapies for peripheral nerve injury. *Br Med Bull* 2011;100:73-100.