

Facial Nerve Palsy in Neonates Secondary to Forceps Use

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Objective: To characterize the presentation, treatment, and outcome of neonates presenting with facial nerve palsy resulting from forceps use.

Design: Retrospective medical chart review.

Setting: Two tertiary care pediatric hospitals.

Patients: Neonates with facial nerve palsy caused by forceps use born during the period of April 1, 1989, to April 1, 2005.

Main Outcome Measure: Resolution of facial nerve palsy.

Results: Twenty-eight cases of facial nerve palsy caused by forceps use were identified. The palsy was classified as mild to moderate according to the House-Brackman scale. Except in 1 neonate, no treatment was initiated in any of the patients. All 21 neonates with adequate long-term follow-up recovered fully after an average period of 24 days.

Conclusion: Because facial nerve palsy caused by forceps use is generally mild and is associated with a favorable outcome, treatment with corticosteroids or surgery is generally not required.

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WE HAVE CONFIRMED that treatment of facial nerve paralysis secondary to forceps use is generally not necessary because most cases will resolve spontaneously. Facial nerve palsy secondary to trauma by forceps use at birth was first noticed and studied by Landouzy, who made it the subject of his doctorate thesis in 1839.¹ Although his observations date from more than 150 years ago, his description of the condition was very accurate and has been confirmed by studies performed in the 20th century.

Facial nerve palsy caused by forceps use is a common occurrence, with a reported incidence of 0.8 to 7.5 cases per 1000 births overall² and 8.8 cases per 1000 births by forceps delivery.³ Previous observations indicate that while most cases of facial nerve palsy caused by birth trauma implicate the use of forceps,^{3,4} up to 33% occur in spontaneous vaginal delivery without instrumentation.² The injury is induced by the pressure of the posterior blade of the forceps or the maternal sacral promontory

onto the stylomastoid foramen, or by compression of the bone overlying the vertical segment of the facial canal.⁵ Our objective was to characterize the presentation, treatment, and outcome of neonates presenting with facial nerve palsy caused by forceps use at 2 tertiary care pediatric hospitals.

METHODS

Neonates from the Montreal Children's Hospital and Ste-Justine Hospital, Montreal, Québec, Canada, hospitalized with facial nerve palsy caused by forceps trauma and born during the period April 1, 1989, to April 1, 2005, were identified. Information gathered retrospectively from the medical charts included sex, severity of the facial nerve palsy, side affected, associated manifestations, treatment, and outcome.

RESULTS

A total of 28 cases of facial nerve palsy secondary to forceps use at the time of birth were identified. There were sufficient follow-up data to assess the outcome in 21

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of the 28 cases. Characteristics at time of presentation of the 28 patients are as follows:

Characteristic	Patients, No.
Sex	
Female	12
Male	16
Side affected	
Left	13
Right	15
Severity (grade)	
II	7
II-III	5
III	6
III-IV	1
IV	1
Unknown	8

The grade of the facial nerve palsy was generally mild to moderate, with an average severity grade of II to III on the House-Brackman scale.

Four neonates presented with other associated conditions; one had a right brachial plexus injury associated with a grade III to IV left facial nerve palsy, the second had ipsilateral abducens nerve paralysis and hypotonia, the third had hepatorenal tyrosinemia, and the fourth had experienced a skull fracture. Interestingly, complete recovery was only achieved after 1 to 2 months in the first 3 patients, which is longer than the average time to complete recovery of 24 days. The neonate with a skull fracture recovered fully from his facial nerve palsy within 5 days.

With the exception of 1 neonate who received a 14-day course of oral prednisone, none received treatment targeted at the facial nerve palsy. This neonate followed a course similar to that of the others. He recovered after a period of 1 month, that is, 1 week longer than the mean recovery time.

Recovery was complete in all of the 21 cases with adequate follow-up information in the medical chart. Complete recovery was achieved in 3 days to 4 months (mean recovery period, 24 days [median, 17.5 days]). Of the 7 neonates with incomplete follow-up data, 4 achieved at least partial improvement in 5 days to 3 months, and 2 had no documented follow-up. Of particular interest, the neonate with the most severe facial nerve palsy, a grade IV on the House-Brackman scale, recovered fully within 5 days without any treatment.

COMMENT

There is discrepancy in the literature on the investigations and/or treatment options to be undertaken in facial palsy owing to birth trauma. Although certain authors^{6,7} recommend acute exploration of the nerve, most consider observation to be sufficient in uncomplicated cases.⁸ Arguments supporting a conservative approach include the fact that more than 90% of infants recover spontaneously⁹ and that, to our knowledge, no controlled study has shown an improved outcome following surgical nerve exploration and decompression. Furthermore, surgical exploration carries a high risk of iatrogenic injury.⁹ However, surgical exploration must be considered in infants with poor prognostic factors and in those who do not show improvement

after a period of observation of 5 weeks. Factors that are considered to be associated with a poor prognosis are unilateral complete paralysis present at birth, hemotympanum, displaced fracture of the temporal bone, absence of voluntary and evoked motor unit responses in all muscles innervated by the facial nerve by 3 to 5 days of life, and no improvement of facial nerve function by 5 weeks of age.⁸ It is important to note that in our study none of the patients presented with poor prognostic factors, and no surgery was undertaken to explore or decompress the facial nerve.

To our knowledge, the use of corticosteroid treatment to decrease the inflammation and accelerate the recovery in neonates with facial palsy caused by forceps injury has never been addressed. In our study, all neonates with sufficient follow-up recovered fully, and the single neonate who received corticosteroids took longer than average to recover fully. Although there are limited data on corticosteroid use for this condition, our results indicate that it is not justified to expose these patients to the risks and adverse effects associated with corticosteroid treatment because the prognosis is excellent with observation alone.

Our recovery rate of 100% in patients with adequate follow-up (21 of 21) after forceps-induced facial nerve palsy is consistent with rates previously reported. In the series described by Kumari et al,¹⁰ all 16 subjects who experienced facial nerve palsy secondary to birth trauma recovered fully. In the series reported by Falco and Eriksson,³ 89% of the 66 subjects with adequate follow-up recovered fully. In the series reported by Camus et al,¹¹ only 1 of 17 subjects had a persistent weakness after 2 months and was subsequently diagnosed as having hypoplasia of the depressor anguli oris muscle. Of note, all 3 studies included newborn patients with facial nerve paralysis from various etiologies, including cases occurring subsequent to a vaginal delivery or a cesarean delivery without forceps use.

In conclusion, facial nerve palsy caused by forceps injury is a relatively common complication of forceps use and may create considerable parental distress. In our study, the reported severity was generally mild to moderate, with an average House-Brackman grade of II to III, and the prognosis was excellent, with a recovery rate of 100%, most often without treatment. This confirms that corticosteroid treatment or surgery should be withheld in neonates presenting with uncomplicated facial nerve palsy resulting from forceps trauma.

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concept and design: Duval and Daniel. *Acquisition of data:* Duval. *Analysis and interpretation of data:* Duval and Daniel. *Drafting of the manuscript:* Duval and Daniel. *Critical revision of the manuscript for important intellectual content:* Duval and Daniel. *Statistical analysis:* Duval and Daniel. *Obtained funding:* Daniel. *Administrative, technical, and material support:* Daniel. *Study supervision:* Daniel. **Additional Contributions:** Anthony Abela, MD, from Ste-Justine's Hospital, allowed us access to some of the patients' data presented in this article.

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Correction

Error in Author Name. In the Original Article titled "Clinical Predictors of Quality of Life in Patients With Initial Differentiated Thyroid Cancers" by Almeida et al, published in the April issue of the *ARCHIVES* (2009;135[4]:342-346), an error occurred in the name of one of the coauthors on page 342. The name "Juliana Almeida, DDS, MSc" should have read "Juliana Pereira Almeida, DDS, MSc."