

Lower Motor Neuron Facial Palsy in 13 months old due to Acute Otitis Media and its challenges: a case report

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Introduction

- Lower Motor Neuron Facial Nerve Palsy(FNP) is rare in children.
- Its annual incidence is estimated to be less than 2.7 per 100,000.¹
- Overall, in Children the Idiopathic(Bell's Palsy) is leading cause of FNP but in toddlers' infection is the leading aetiology¹.
- This case report describes a previously healthy toddler who developed acute FNP three days after upper respiratory symptoms, with concurrent AOM findings.

History of Presenting Illness and Exam

- A 13-month-old girl presented with coryza for 3 days and fever for 1 day, along with left facial fullness noted by her mother. No history of trauma, rash, ear discharge, or recent travel. Well child and up-to-date with vaccinations.
- Examination revealed an alert, non-distressed child with left eyebrow droop, limited left forehead frowning, incomplete left eye closure, and loss of left nasolabial fold (grade IV House Brackmann scale) consistent with left FNP.
- Bilateral red bulging tympanic membranes noted on otoscopy. No mastoid tenderness or other concerns.
- Remainder of systemic and neurological examination was unremarkable.

Course During Hospital Stay

- Leucocytosis 14600/mcc, C-reactive 3.5mg/dL(Ref Rang 0-5mg/dL).
- Extended Viral Panel +ve Human Metapneumovirus RNA, while Blood Culture were Negative.
- Treatment with IV Cefotaxime and IV metronidazole commenced. Oral prednisolone also added. Give dose OF STEROID
- Tympanometry revealed bilateral **middle ear effusion**, ENT team performed myringotomy and tympanostomy tube Insertion, discharge yielding **Staphylococcus aureus**, (MSSA).
- Ophthalmology team advised eye taping, artificial tears, and ointments for corneal exposure. 7 days IV antibiotics were followed by 2 weeks of oral cephalexin.
- At the 21-day follow-up, facial paresis improved from grade IV to II on the House Brackmann scale.

Discussion

- FNP is a very rare complication of AOM with an incidence of <0.005%² due to easy access to antibiotics and healthcare nowadays. The pathophysiology for FNP is unclear and multifactorial. Gram-positive cocci, particularly Streptococcus pneumoniae and Staphylococcus species, are commonly implicated³.
- In our hospital, secondary AOM-related facial nerve palsy is promptly treated with intravenous antibiotics, steroids, myringotomy, and grommets placement.
- **The use of steroids in AOM leading to FNP in children is debatable.** An RCT by Unuvar et al. ⁴and a large-scale paediatric study by Hanci et al.⁷ found that children on steroids did better; however, a recent publication of the BellPIC⁵ study found no significant difference.
- For AOM-related facial palsy⁶, myringotomy relieves pressure on the facial nerve by draining middle ear exudate and assists in diagnosis and antibiotic selection.
- A CT scan wasn't done since the child improved within 72 hours of therapy. However, we recommend it if there's no clinical improvement after medication and myringotomy, or if intracranial complications are suspected.
- As observed in our patient, the prognosis for AOM-related facial nerve palsy is typically favourable with appropriate therapy, although a 6% incidence of residual dysfunction has been reported⁷.



Conclusion

- ✓ **In the current era of easy access to healthcare and antibiotics, facial nerve palsy (FNP) is a rare complication of acute otitis media (AOM).**
- ✓ **It is important to rule out other causes before making a diagnosis of Bell's palsy. Clinicians should remain vigilant about acute infections as a potential cause of FNP.**
- ✓ **Idiopathic or post-viral facial palsy is uncommon in children less than 2 years.**

References

1. Rowlands S, Hooper R, Hughes R, Burney P The epidemiology and treatment of Bell's palsy in the UK Eur J Neural, 9 (1) (2002), pp. 63-67 doi: 10.1046/j.1468-1331.2002.00343.x.
2. Wolfowitz A, Yehudai N, Luntz M. Prognostic factors for facial nerve palsy in pediatric population: A retrospective study and review. Laryngoscope 2016; 127: 1175–80.doi: 10.1002/lary.26307. Epub 2016 Sep 19
3. Gaio E, Marioni G, De Filippis C, Tregnaghi A, Caltran S, Staffieri A. Facial nerve paralysis secondary to acute otitis media in infants and children. J. Paediatr. Child Health 2004; 40: 483–6.doi: 10.1111/j.1440-1754.2004.00436.x.
4. Ünüvar, E.; O'guz, F.; Sidal, M.; Kılıç, A. Corticosteroid treatment of childhood Bell's palsy. Pediatr. Neurol. 1999, 21, 814–816.DOI:https://doi.org/10.1016/S0887-8994(99)00099-5
5. Babl F. E., Herd D., Borland M L, Kochar A., Lawton B., Hort J., West A et al Efficacy of Prednisolone for Bell Palsy in Children: A Randomized, Double-Blind, Placebo-Controlled, Multicenter Trial Neurology. 2022 Nov 14;99(20):e2241-e2252. doi:10.1212/WNL.000000000000201164
6. Fichera P, Bruschini L, Berrettini S, Capobianco S, Fiacchini G. Acute Otitis Media and Facial Paralysis in Children: A Systemic Review and Proposal of an Operative Algorithm. Audiol Res. 2023 Nov 8;13(6):889-897. doi: 10.3390/audiolres13060077
7. Hanci F, Türay S, Bayraktar Z, Kabakuş N. Childhood Facial Palsy: Etiologic Factors and Clinical Findings, an Observational Retrospective Study. Journal of Child Neurology. 2019;34(14):907-912. doi:10.1177/0883073819865682