European Journal of Special Education Research
ISSN: 2501 - 2428
ISSN-L: 2501 - 2428
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejse.v10i3.5376 Volume 10 | Issue 3 | 2024

DENTAL MANAGEMENT OF CHILD WITH HORNER SYNDROME: A CASE REPORT

Priyambana Pandey[1],
Sonal Gupta[2],
Utkarsh Singh[1],
Antra Saket[1],
Riya Ojha[1i]
[1]Dr., Post Graduate Student,
Department of Pediatrics and Preventive Dentistry,
Kanti Devi Dental College and Hospital,
Uttar Pradesh, India
[2]Dr., Head of the Department,
Department of Pediatrics and Preventive Dentistry,
Kanti Devi Dental College and Hospital,
Uttar Pradesh, India

Abstract:
Aim: The purpose of the case report was to highlight the various features of Horner syndrome to aid in diagnosing this syndrome, which has classic clinical features like miosis, ptosis, and anhidrosis, along with poor oral hygiene and carious teeth. **Background**: Francois Pourfour du Petit originally defined the disease in 1727 when discussing the outcomes of an animal experiment in which intercostal nerves were removed, and the ipsilateral eye and face were the subsequent subjects of modifications. Claude Bernard, a French physiologist, provided a more detailed description of it in 1852. **Case report**: Thus, to highlight the features of Horner syndrome, we are presenting a case report of a 6-year-old female child who reported to the department with a chief complaint of pain in the lower correct back teeth region. There was no significant prenatal or postnatal history.

Keywords: inclusion, students with special needs, wicked problems, service design, systemic design approach

1. Introduction

Horner syndrome, also commonly called the Bernard-Horner syndrome, oculosympathetic palsy or Von Passow syndrome, is a rare congenital deformity that

[i] Correspondence: email pandeypriyambana@gmail.com, sonalpedo@gmail.com, gabbarutkarsh@gmail.com, antrasaket2@gmail.com, riyaojha18@gmail.com

affects the eye and surrounding structure on one side of the face and results from paralysis of certain nerves in that area.[1] The first observation of the anomaly was reported by Swiss ophthalmologist Johann Friedrich Horner in 1869.[2] It is characterized by a constricted pupil (miosis), drooping of the upper eyelid (ptosis), absence of sweating of the face (anhidrosis), and sinking of the eyeball into the bony cavity that protects the eye (enophthalmos). These are the four classic signs of the disorder.[3] It affects 1 in 6000 live births, with males and females having an equal ratio with congenital onset.[4] A lesion to the sympathetic pathways, particularly the oculosympathetic fibers, that feed the head and neck causes Horner's syndrome.[5]

In children, it is often categorized as either acquired or congenital. Infants with Horner syndrome may also exhibit contralateral hemifacial flushing and ipsilateral hypohidrosis, a condition known as Harlequin syndrome, in addition to iris heterochromia. The most common cause of congenital Horner syndrome is birth trauma. It is frequently possible to elicit a history of forceps delivery, vacuum extraction, shoulder dystocia, fetal rotation, and/or limb manipulation in these patients. Occasionally, concurrent brachial plexus damage is detected. Congenital tumours, postviral damage, internal carotid artery agenesis, hypoplasia, and fibromuscular dysplasia are among other etiologies.[6]

2. Case Report

A 6-year-old female child was reported to the Department of Pediatric and Preventive Dentistry with a chief complaint of pain in the lower right back teeth region. There was no significant prenatal or postnatal history. Past medical history reveals that the patient was suffering from jaundice, pneumonia, and a middle ear infection, which caused her to have a slight hearing loss. In past dental history, the patient underwent an extraction in respect to 54. No signs of intellectual disability or any other neurological symptoms were noted. No vertebral or skeletal abnormalities were detected.

3. Differential Diagnosis

Adie Syndrome is an uncommon neurological condition that affects the eye's pupil. A big (dilated) pupil and a sluggish response to light or concentrate on adjacent objects are the signs of this syndrome. Wallenberg Syndrome is a rare disorder caused by a blood clot. On the side of the body opposite the lesion, there are symptoms of Horner's Syndrome and a lack of pain and temperature perception.[3]

3.1 Final Diagnosis

Horner syndrome, following the presence of classical features of clinical triads such as miosis, ptosis and anhidrosis.

4. Treatment Done

In the first appointment, local anaesthesia was given (Lignox 2 %A), a rubber dam was applied, and an access cavity was prepared with the help of a round bur concerning 85. Intermittent canal irrigation with 5ml of 3% NaOCl (chemident) and 5ml saline (Nacl) was carried out whilst the biomechanical preparation, followed by obturation by metapex.

Then, the patient was recalled after two days; a stainless steel crown was given with respect to 85 and on the same day, banding was done on 55, 65 and 36 (.005 - .006 inch thickness and 0.18 – 0.20 inch wide), alginate impression was taken, followed by extraction root stump 64 and grossly carious 75. In the next sitting, band and loop space maintainers were delivered for 55, 65, and 36. Fluoride application was made, oral hygiene instructions were given, and the patient was recalled after three months for a regular dental checkup.

5. Discussion

The incidence of Horner syndrome is an extremely rare congenital anomaly. In 1869, the condition was first reported and, after that, called after the Swiss ophthalmologist Johann Friedrich Horner.[7] Clinical symptoms include the typical triad of ptosis, miosis, and anhidrosis. It is caused by a lesion to the head and neck region's sympathetic nervous system.[5]

Of the 73 pediatric patients in this comprehensive study, 42% had conditions that were noted to be congenital, and 42% had acquired them as a result of surgery on the neck, thorax, or central nervous system. The etiologies of the remaining 15% of acquired Horner syndromes included brachial plexus injuries, neuroblastoma, rhabdomyosarcoma, and spinal cord malignancies. Neuroblastoma is the most common occult malignancy associated with Horner syndrome, with an incidence of one in 7,000 children younger than the age of 5 years.[6] Horner syndrome may be examined as a possible diagnosis if a patient exhibits anisocoria and what seems to be normal pupillary constriction to light in both the more significant and smaller pupil. If the smaller pupil's dilation lag is present, it aids in the diagnosing process as well. Individuals suspected of having Horner syndrome should be assessed for signs of cranial nerve malfunction. Cocaine is a handy tool for Horner syndrome diagnosis confirmation. Following the confirmation of the Horner syndrome diagnosis, a suitable examination ought to be carried out. This should include a thorough physical examination, magnetic resonance imaging of the chest, neck, and brain, and a urine catecholamine assay in newborns and kids.[6]

Children who are disabled have a higher risk of oral conditions such as periodontal disease and dental caries and under the age of 5 years, they may suffer from nursing bottle caries or early childhood caries due to inadequate oral health care compared to the general population. So, it is essential to provide appropriate oral care to special children to ensure good health and improve their quality of life. Over 1 billion

individuals, or 15% of the world's population, are estimated to have a handicap or special need. Thirteen million of these children experience significant challenges. Of these, an estimated 93 million children (aged 0–14) have moderate or severe needs. Approximately 892 million adults over the age of 15 have moderate-to-severe requirements, and 175 million experience severe challenges.[8]

A. Mehta et al. (2015) S. G Nahare et al. (2019) D. Patidar et al. (2022) and I. Pandiyan et al. (2023) conducted a study to evaluate the oral hygiene status of disabled children. They concluded that disabled children experience more significant challenges to proper oral hygiene and health care, often due to a lack of basic manual skills and intellectual abilities that preclude adequate practices, such as toothbrushing.[9]

Dr. N Sinha et al. (2015), Dr. A. Sharma et al. (2018), V. Ningrum et al. (2021), and Bandana Pathak et al. (2021) conducted a study to analyse oral health inequities between special needs children and normal children; they concluded that oral health status is worse among special needs children compared to normal children, special needs children need more help with activities of daily living from their caregivers and proper oral health management by a specially trained dentist.[10]

6. Pictures

6.1 Extraoral Picture

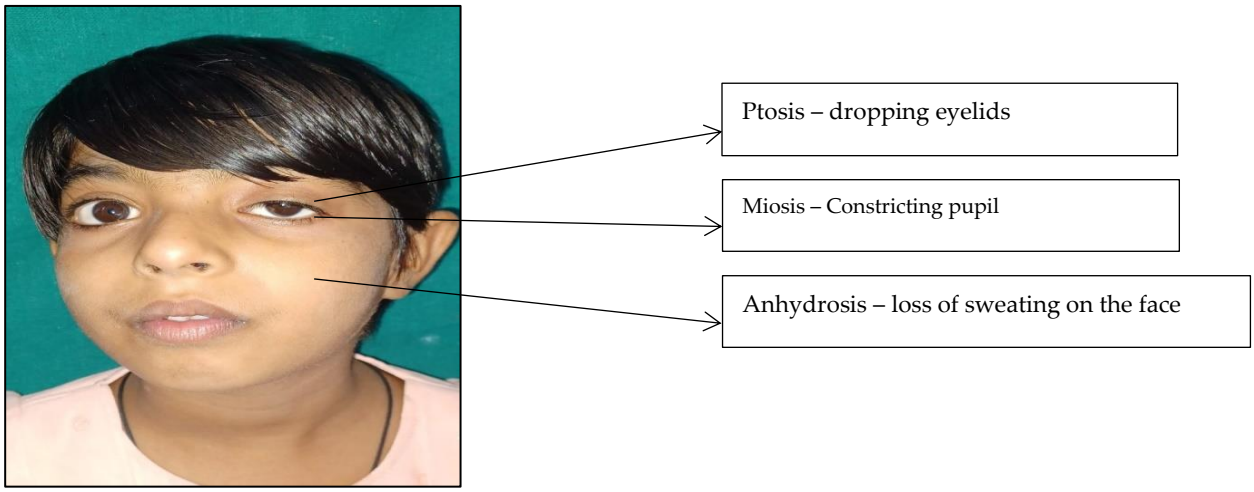
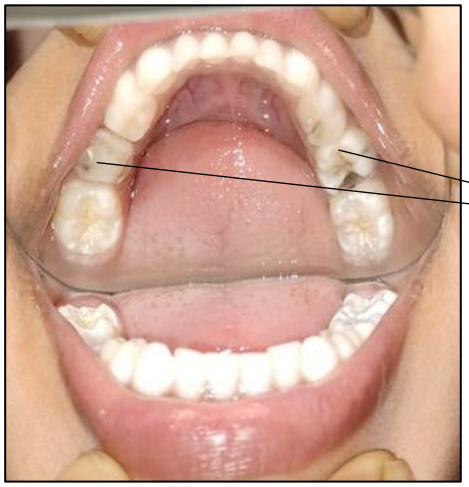
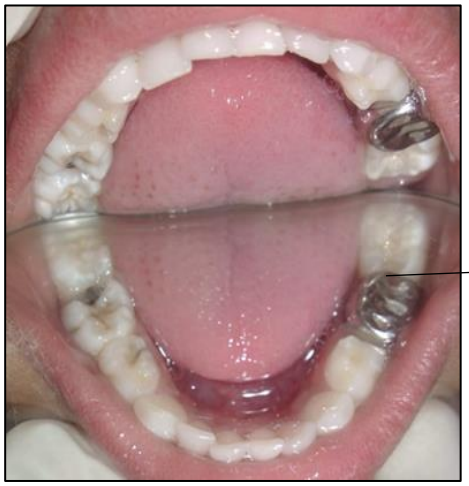


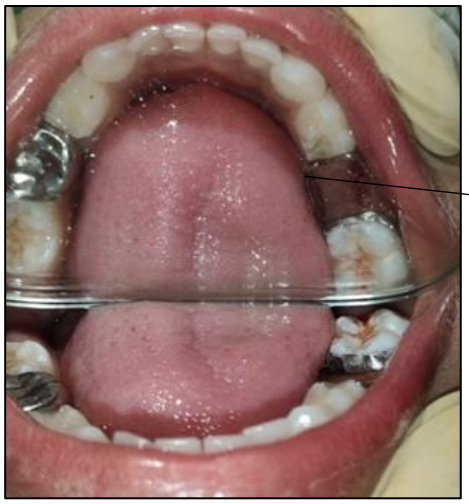
Figure 1: Extraoral picture of the patient

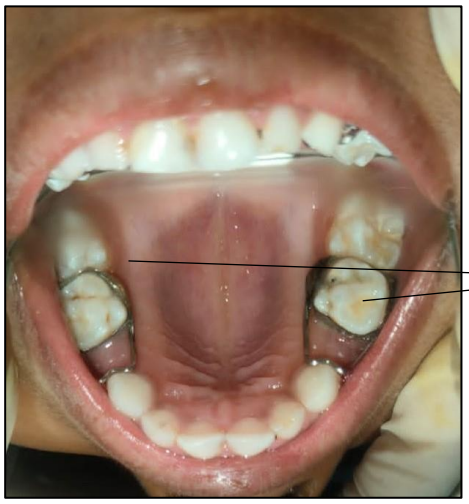
6.2 Intraoral Pictures



6.3 After Treament Pictures







6. Conclusion

There are several different causes of Horner syndrome, some of which are potentially fatal. As a result, the doctor who suspects Horner syndrome has to closely monitor the patient for any further neurologic symptoms that could support the diagnosis and help identify the lesion's location.[6] Children with special health care needs often lack and neglect their personal oral health care due to limited accessibility and affordability. So, caregivers and dental professionals must make additional efforts to maintain their oral health care.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Dr. Priyambana Pandey is a Postgraduate Student at Kanti Devi Dental College, Mathura Uttar Pradesh, India.

Dr. Sonal Gupta is a Professor and Head of Department at Kanti Devi Dental College, Mathura, Uttar Pradesh, India. She has published more than 100 articles in national and international journal and she is a national level speaker as well.

References

1. Han, J., Park, S. Y., & Lee, J. Y. (2021). Nationwide population-based incidence and etiologies of pediatric and adult Horner syndrome. Journal of neurology, 268(4), 1276–1283. https://doi.org/10.1007/s00415-020-10270-2
2. Sabbagh, M. A., De Lott, L. B., & Trobe, J. D. (2020). Causes of Horner Syndrome: A Study of 318 Patients. Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society, 40(3), 362–369. https://doi.org/10.1097/WNO.0000000000000844
3. Martin T. J. (2018). Horner Syndrome: A Clinical Review. ACS chemical neuroscience, 9(2), 177–186. https://doi.org/10.1021/acschemneuro.7b00405
4. Trobe J. D. (2010). The evaluation of horner syndrome. Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society, 30(1), 1–2. https://doi.org/10.1097/WNO.0b013e3181ce8145
5. Kedar S, Biousse V, Newman NJ. (2012). Horner's syndrome. UpToDate, Waltham, MA.
6. Kanagalingam S, Miller NR. (2012). *Horner syndrome: clinical perspectives*. Eye and brain. 2015 Apr 10:35-46.
7. Khan Z, Bollu PC. Horner syndrome. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK500000/
8. Patidar, D., Sogi, S., & Patidar, D. C. (2022). Oral Health Status of Children with Special Healthcare Need: A Retrospective Analysis. International journal of clinical pediatric dentistry, 15(4), 433–437. https://doi.org/10.5005/jp-journals-10005-2419
9. Rao, Dinesh & Hegde, Amitha & A.K.Munshi,. (2005). Oral hygiene status of disabled children attending special schools of South Canara, India. Hong Kong Dental Journal. 107-113. Retrieved from https://www.researchgate.net/publication/215563194_Oral_hygiene_status_of_disabled_children_attending_special_schools_of_South_Canara_India
10. Ningrum, V., Bakar, A., Shieh, T. M., & Shih, Y. H. (2021). The Oral Health Inequities between Special Needs Children and Normal Children in Asia: A Systematic Review and Meta-Analysis. Healthcare (Basel, Switzerland), 9(4), 410. https://doi.org/10.3390/healthcare9040410