ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 4, Issue – 4, August - 2021, Page No. : 137 - 142

Hermans-Herzberg Phakomatosis - A Rare Case Report of 11-Year-Old Male Patient

[1]Dr. Bhavana Valvi, Assistant Professor, Department of oral and maxillofacial surgery, Government dental college and hospital, Nagpur, Maharashtra, India

[2]Prof. Kanchan Shah, Associate Professor, Department of oral and maxillofacial surgery, Government dental college and hospital, Aurangabad, Maharashtra, India

[3]Dr. Wahab Shaikh, Associate Professor, Department of oral and maxillofacial surgery, Government dental college and hospital, Aurangabad, Maharashtra, India

[4]Dr. Suraj Parmar, Assistant Professor, Department of oral and maxillofacial surgery, Government dental college and hospital, Nagpur, Maharashtra, India

[5]Dr. Bhagyashri Landage, Assistant Professor, Department of oral medicine, Radiology, Government dental college and hospital, Aurangabad, Maharashtra, India

Corresponding Author: Dr. Suraj Parmar, Assistant Professor, Department of oral and maxillofacial surgery, Government dental college and hospital, Nagpur, Maharashtra, India

Citation of this Article: Dr. Bhavana Valvi, Prof. Kanchan Shah, Dr. Suraj Parmar, Dr. Wahab Shaikh, Dr. Bhagyashri Landage, "Hermans-Herzberg Phakomatosis- A Rare Case Report of 11-Year-Old Male Patient", IJDSIR- August - 2021, Vol. – 4, Issue - 4, P. No. 137 – 142.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Hermans-herzberg phakomatosis or Gorlin goltz syndrome is an inherited autosomal dominant disorder associated with numerous Odontogenic keratocyst, spina bifida, bifid ribs, falx cerebri calcifications and may or may not be associated with mental illness. This syndrome is considered to be due to abnormality in long arm of chromosome 9 (q22.3-q31) or mutations of PTCH 1 gene. Diagnosis is based on Evan's major and minor criteria's while confirmation is done by radiological examinations via Orthopantomograph, PA skull, CBCT/3DCT, Chest X rays routinely. Ideally the confirmation is done by DNA analysis. We encountered total 7 cases at our institution out of which three patients were having same familial background. Our findings may be an addition in the literature especially in the field of dentistry as all reported patients were having oral cavity involvement and we were successful in managing the same with regular follow-up.

Keywords: Gorlin goltz syndrome, OKC, Palmer-planter pits

Introduction

Hermans-herzberg phakomatosis is an inherited autosomal dominant disorder with equal gender distribution with a ratio of 1:1 with a prevalence of 1 per 60 000. This

syndrome is of utmost important as far as when oral cavity is concerned. [1] As it involves both the jaws with maximum predisposition for mandible. It shows formation of multiple Odontogenic keratocyst. This syndrome requires multi-disciplinary approach as if not treated on time can convert in to basal cell carcinoma. The genetic predisposition is considered to be the primary cause with an involvement of PTCH 1 gene with abnormalities of chromosome 9.[2] This syndrome needs long term follow up as well as management for other involved systemic issues like calcification of falx cerebri, can be associated with mental retardation, bifid or fused ribs, spina bifida, Multiple basal cell carcinomas, Odontogenic keratocyst, Congenital malformations ,Palmar and plantar pits, Skeletal anomaly with polydactyl, Ovarian fibroma, Macrocephaly and many more.[3] Therefor early diagnosis in initial decades of life becomes beneficial in these types of patients. At our institution we could recognize these syndromes in an 11-year-old patient at an early age. Parents were guided properly and familial history was recognized and all the 3 members of similar disease of same family came for their management. In country like India needs awareness of this syndrome so that the life of such patients will not be compromised and being a maxillofacial surgeon, we can provide early oral rehabilitation in these patients to make them functionally and aesthetically stable.

Case Report

A 10 years old boy reported to the Department of Oral and Maxillofacial Surgery along with his parents having a chief complaint of asymptomatic swelling over right side of face since last 2 months. On general examination, patient was well oriented to time, place and person, with mesomorphic built, Normal gait, well nourished, with weight of 34 kg. No signs of pallor, icterus, anaemia, clubbing, cyanosis and oedema were present. Right submandibular lymph nodes were palpable and tender on palpation. No significant past medical and dental history was contributory. Familial history revealed two siblings with similar disorder. There was no history of trauma to the site of chief complaint, no history of pus discharge was reported by the patient.

On clinical examination Extra-oral findings revealed diffuse swelling over lower right side of face with slight mandibular prognathism, which was non-tender, non-reducible, non-compressive in nature. Generalized Clinical examination revealed palmer-planter pits, frontal bossing with increased inter-canthus distance. No skin lesions were presented suggestive of basal cell carcinoma. (fig 1)

While intra-oral examination showed buccal cortical expansion extending antero-posteriorly from lower right 1st molar to right lateral incisor tooth. (fig 2) The respective mucosa was normal, on palpation the region found mild tender, with mobility of 1st lower right permanent molar, deciduous 1st molar and deciduous canine.

Cone Beam Computed Tomography scan was taken which was showing multiple hypo dense regions in maxilla and mandible. Large hypo-dense area was present in right side of mandible with multiple impacted teeth with pathological migration of permanent canine and premolar were present suggestive of cystic lesions. This right sided lesion of mandible was multi-cystic and extending till lower border of mandible with normal lingual plate without any expansion. This lesion was roughly about 35.5 x 17.8 mm in dimensions. One cystic lesion in right side of maxilla was about 10.1 mm x 9.9mm with impacted permanent canine and one small cystic lesion of about 5.4mm x 5.3mm in left mandible was present.PA skull view & CT scan of brain was taken and no significant findings were found. Chest X-ray was taken

which showed presence of bifid rib (Fig 3) by analysing these clinico-radiological and histopathological discovery, the lesion was provisionally diagnosed as an odontogenic keratocyst. Hence the multiple cystic lesions of maxilla and mandible along with other clinical features, the final diagnosis of Hermans-herzberg phakomatosis was made.

Initially aspiration of the cystic region was done which came out positive and showed creamy-cheesy and straw color fluid followed by Incisional biopsy of the large cystic lesion of the mandible under local anesthesia was taken which revealed Odontogenic keratocyst on histopathological diagnosis, which was surgically enucleated along with other cystic lesions successfully under general anesthesia. The enucleated cystic lesion was again sent for Histopathological evaluation, that confirmed the diagnosis of Para keratinized Odontogenic keratocyst with basal cuboidal to columnar palisading epithelium cells along with satellite cyst projections in fibro collagenous stroma with inflammatory cell infiltrates and Para keratinized stratified squamous epithelium was found. (Fig 2) Patient was kept under follow up for 1 year and no recurrence is found so far.

Our patient was further evaluated for the Evan's et al major and minor criteria modified by Kimonis in 2004 (Table 1) for confirmatory diagnosis of Gorlin Goltz syndrome. According to these criteria's at least two major and one minor or one major and three minor criteria should be fulfilled by the patient. Our patient fulfilled the Three major and two minor criteria's, given major and minor criterions were found in our patient.

Major criteria's

1) Presence of Odontogenic Keratocyst.
2) Palmer-Planter pits.
3) Bifid ribs

Minor criteria's

1) Clinically increased inter-canthal distance.
2) Broad nasal root

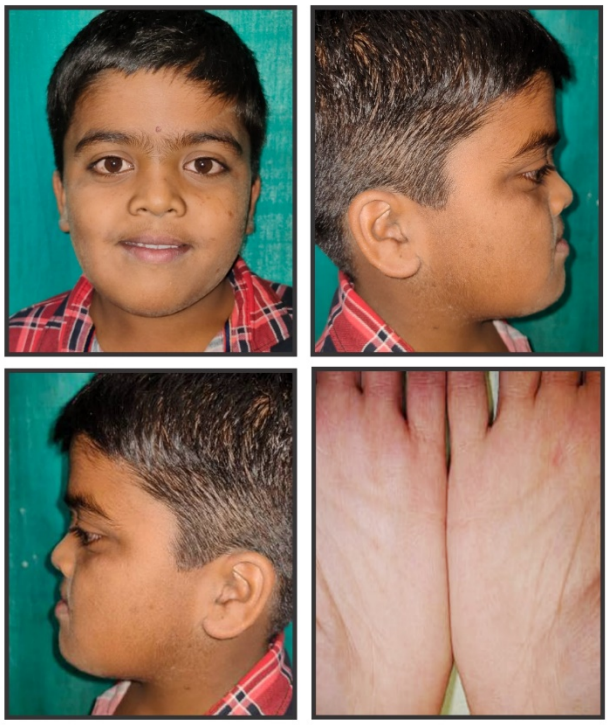

Fig 1 : Extra-oral and general features

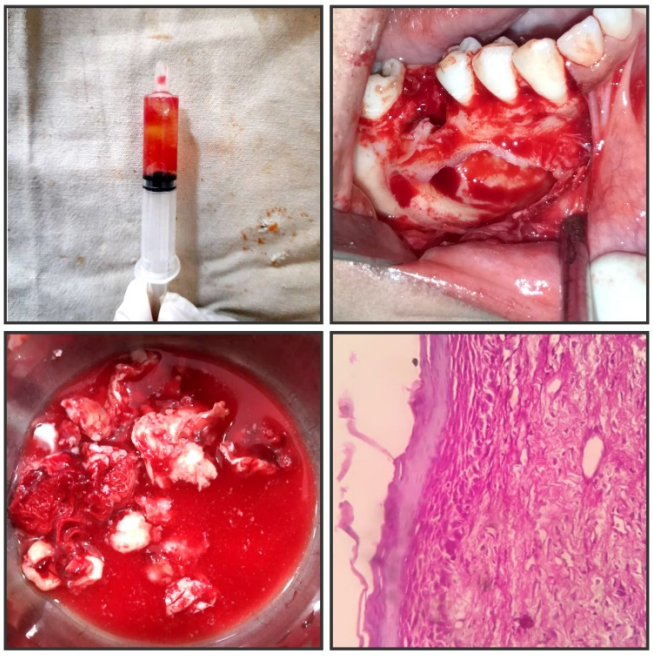

Fig 2: Intra-oral features and histopathological features

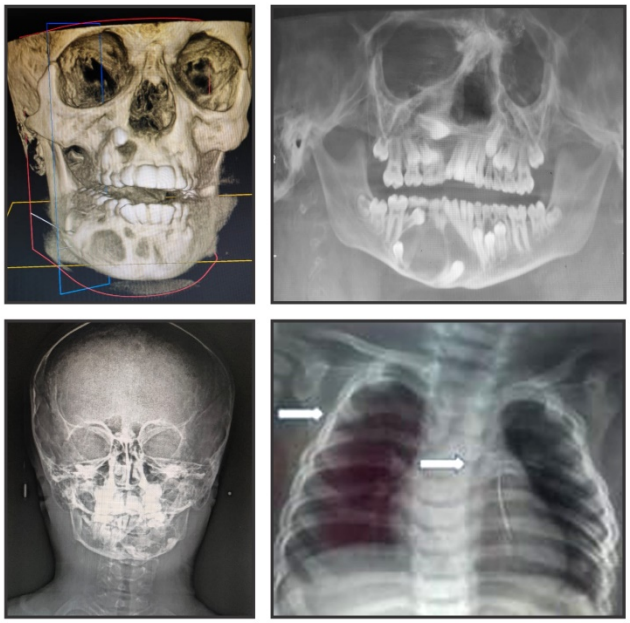

Fig 3: Radiographically features

Major criteria	Minor criteria
Multiple basal cell carcinomas	Macrocephaly
Odontogenic keratocyst	Congenital malformation
Palmar/ plantar pits	Skeletal anomaly
Calcified falx cerebri	Radiologic anomaly
Bifid/ fused rib	Ovarian fibroma

Table 1: Evan's major and minor criteria's modified by Kimonis 2004

Minimum two major and one minor criterion or one major and three minor criteria should be present for confirmation of Final Diagnosis.

Discussion

Hermans-herzberg phakomatosis is an Autosomal Dominant Disorder, also called as Nevoid Basal cell Syndrome, Multiple basal-cell carcinoma syndrome. Jaw cyst and basal nevoid syndrome, Hermans-herzberg phakomatosis. Jarish and White in 1884 described It for the First time. While its detailed description was given **Robert James Gorlin** and **William Goltz** in 1960. Gorlin and Goltz in the 1960s described it as disorder having multiple Basal Cell Carcinoma's, multiple odontogenic keratocysts, and abnormalities of skeletal [(4)] in majority of the time, "This syndrome shows Skeletal, Dental, Neurological and Opthalmic Malformations which includes basal cell nevus , benign dermal cysts and tumors, palmar, plantar pits and keratosis, with calcinosis of dermal region. Dental and osseous deformities include multiple Odontogenic keratocysts, prognathic mandible, frontal bossing, temporoparietal bossing, kyphoscoliosis and vertebral defects, with bifurcated ribs. Ophthalmic abnormalities include hypertelorism, wide nasal bridge, dystopia canthorum, congenital blindness, and internal strabismus. Neurological variances include mental retardation, dural calcification, bridging of sella, corpus callosum agnesis, congenital hydrocephalus, and medulloblastoma. Sexual malfunctions include hypogonadism and ovarian tumor-like fibrosarcoma".[(5)] For confirmation of its Diagnosis **Evan's et al** [(6-7)] has given Major and Minor Criteria's which were modified by **Kimosis** in 2002.[(8)] Other skeletal, ophthalmic and mental disorders includes frontal bossing, temporo-parietal bossing, prominence of supra-orbital rim, Patient with gorlin goltz syndrome may have spina bifida, polydactyly, kyphoscoliosis.[(9-10)] Hermans-herzberg phakomatosis is proved to be due to mutation of chromosome 9 which affecting its long arm at q22.3q31[(11,12,13)]sometimes similar features are seen with patients exposed to UV radiation for long time. In our case we found familial history as a primary cause. Even though only one or two Evan's respective criteria are sufficient for the confirmation of this condition about 100 minor criteria are mentioned in literature. [(14)] For confirmation of the diagnosis DNA Analysis is considered to be the gold standard along with familial history which was present in our patient. Hence for confirmation of the diagnosis author recommends DNA analysis along with Evan's major and minor criteria for all the patients. Complete clinical, radiological,

histopathological ,dental, dermatological gynaecological examination should be done in all the patients as these patients can be treated early if diagnosed properly and at early stage as well as they needs multi-disciplinary action so approach to respective team becomes possible.[15] Multiple OKCs alone can be consider confirmatory ,and treatment involves removal of cystic lesion by enucleation with or without carnoy's solution, laser ablation, photodynamic therapy, or topical chemotherapy, contraindication for these lesion is radiotherapy.[16] Even though this syndrome is called as multiple basal cell nevi syndrome, it shows presence of basal cell carcinoma's in only 50 % of the condition which is common between puberty and 35 years of age. The size of these lesions varies from 1 to 30 mm in diameter. [17] Management for basal cell carcinoma which usually occurs on facial region includes, topical application of 0.1 % retinoin cream, 5% 5-Flourouracil cream, imiquimod 5% cream, cryosurgery and surgical excision. [18,19,20] The management for each feature of this syndromes need multidisciplinary approach and hence proper diagnosis at earlier age should be done whenever possible.

Prognosis

Patients with Gorlin Goltz syndrome are said to be free from life threatening hazards but depending on the aggressiveness of skin lesion especially of basal cell carcinoma if any as its spread toward brain and vital structure can leads to the death but it's rare. Commonly functional and aesthetic deformities can develop due to multiple cysts and its recurrence as well as surgical management. The secondary infections and pathological fractures of the jaws are also noted in the literature [16].

Conclusion

Awareness about this syndrome is at utmost important, along with parental counseling for those who are at risk. The lack of awareness regarding this less known syndrome can lead to delayed diagnosis and treatment. In country like India people living in rural areas are not aware about the syndrome which leads to the delayed diagnosis and delay in treatment, to prevent it spread of awareness of the syndrome is mandatory. Multi-disciplinary approach is required and early treatment can make the patient's life little easier.

References

1. Thomas N, Vinod SV, George A, Varghese A. Gorlin-Goltz syndrome: An often missed diagnosis. Ann Maxillofac Surg 2016;6(1):120–124
2. Guruprasad Y, Prabhu PR. Gorlin-Goltz syndrome with situs oppositus. Natl J Maxillofac Surg 2010;1(1):58–62
3. Jawa DS, Sircar K, Somani R, Grover N, Jaidka S, Singh S. Gorlin-Goltz syndrome. J Oral Maxillofac Pathol 2009;13(2):89–92
4. Sadaksharam J, Annapoorni AV. Gorlin–Goltz Syndrome with Multidisciplinary Approach of Treatment. Annals of the National Academy of Medical Sciences (India). 2019 Oct;55(04):213-8.
5. Evans DG, Ladusans EJ, Rimmer S, Burnell LD, Thakker N, Farndon PA. Complications of the naevoid basal cell carcinoma syndrome: results of a population based study. J Med Genet. 1993;30:460-4
6. Lo Muzio L. Nevoid basal cell carcinoma syndrome (Gorlin syndrome). Orphanet J Rare Dis. 2008;3:32.
7. Yordanova I, Gospodinov DK. A familial case of Gorlin-Goltz syndrome. Journal of IMAB–Annual Proceeding Scientific Papers. 2007 Nov 14;13(1):63-7.
8. Hermes E, Liekenbrocker T, Korner M, Kapp A, Wedi B. Hexadactyly of hand and feet in a patient with basal cell nevus syndrome Hautarzt. 2002;53(10):672-676.

9. Kimonis VE, Mehta SG, Digiovanna JJ, Bale SJ, Pastakia B. Radiological features in 82 patients with nevoid basal cell carcinoma (NBCC or Gorlin) syndrome. Genet Med. 2004; 6(6):495-502.
10. Boutet N, Bignon YJ, DrouinGarraud V, Sarda P, Longy M, Lacombe D, Gorry P. Spectrum of PTCH1 mutations in French patients with Gorlin syndrome. J Invest Dermatol. 2003;121(3):478-481.
11. Chen CP., Lin SP., Wang TH., Chen YJ., Chen M., Wang W. Perinatal findings and molecular cytogenetic analyses of de novo interstitial deletion of 9q (9q22.3— >q31.3) associated with Gorlin syndrome. Prenat Diagn. 2006;26(8):725-729.
12. Matsuzawa N., Nagao T., Shimozato K., Niikawa N., Yoshiura KI. Patched homologue 1 mutations in four Japanese families with basal cell nevus syndrome. J Clin Pathol. 2006;59(10):1084-1086
13. Joshi PS, Deshmukh V, Golgire S. Gorlin-Goltz syndrome. Dent Res J (Isfahan). 2012;9:100-6.
14. Bree AF, Shah MR; BCNS Colloquium Group. Consensus statement from the first international colloquium on basal cell nevus syndrome (BCNS). Am J Med Genet A 2011;155A(9):2091–2097
15. Kalogeropoulou C, Zampakis P, Kazantzi S, Kraniotis P, Mastronikolis NS. Gorlin-Goltz syndrome: incidental finding on routine ct scan following car accident. Cases J 2009;2:9087
16. Charles A. Waldron. Nevoid Basal Cell Carcinoma Syndrome. In: Brad W. Neville, Douglas D. Damm, Carl M. Allen, Jerry E. Bouquot – 1st ed. Oral and Maxillofacial Pathology. Philadelphia: WB Saunders; 1995:501–503
17. Caccialanza M, Percivalle S, Piccinno R. Possibility of treating basal cell carcinomas of nevoid basal cell carcinoma syndrome with superficial x-ray therapy. Dermatology. 2004;208(1):60-3.
18. Ferreres JR, Macaya A, Jucgla A, Muniesa C, Prats C, Peyri J. Hundreds of basal cell carcinomas in a Gorlin-Goltz syndrome patient cured with imiquimod 5% cream. Journal of the European Academy of Dermatology and Venereology: JEADV. 2006 Aug 1;20(7):877-8.
19. Micali G, Lacarrubba F, Nasca MR, De Pasquale R. The use of imiquimod 5% cream for the treatment of basal cell carcinoma as observed in Gorlin's syndrome. Clinical and experimental dermatology. 2003 Nov;28:19-23.
20. Tsuji T, Otake N, Nishimura M. Cryosurgery and topical fluorouracil: a treatment method for widespread basal cell epithelioma in basal cell nevus syndrome. The Journal of dermatology. 1993 Aug;20(8):507-1