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Gorlin-Goltz Syndrome: Multiple Basal Cell Carcinoma, Bifid Rib, Palmar and Plantar Pits in a 50-Year-Old Woman

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A 50-year-old single Filipino woman was referred to our clinic by the Dermatology Department due to multiple large nevi on the face. Her history started 29 years prior to consult when a 0.5 cm by 0.5 cm nevus appeared on her right lower eyelid. Excision of the mass and histopathology revealed basal cell carcinoma of the skin and she ceased follow-up visits. Meanwhile, progressively enlarging nevi appeared over multiple sites of her face. Some of the lesions developed ulceration and occasionally bled. Finally, she consulted again at our institution due to disfiguring multiple large nevi, and was seen by Dermatology and Ophthalmology services and underwent excision biopsy revealing basal cell carcinoma. She was then referred to us for definitive surgical management.

The patient was a non-smoker, non-alcoholic beverage drinker and work did not undergo any prolonged sun exposure. She recalled that her mother had a similar condition and expired due to complications of the disease.

Physical examination revealed many large nevi over multiple sites of the face, the largest over the left nasolabial area. *(Figure 1A)* There were hyperpigmented nevi over the central forehead and left infraorbital area, and the patient's left eye was closed due to scarring from the previous excision in the left medial canthal area. *(Figure 1B)* An ulcerating lesion that occasionally bled, involved multiple subsites of the nose. *(Figure 1C)*

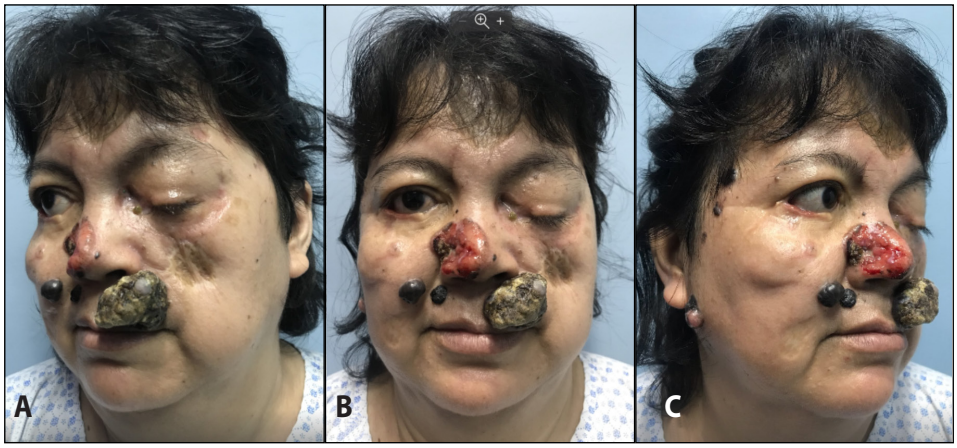

Figure 1A. Right lateral view of the face **B.** profile view of the face and **C.** left lateral view of the face showing multiple lesions described in the text. (Photos published in full, with permission)

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Due to the recurrent multiple basal cell carcinoma on the face, we suspected a possible syndromic disease. Complete systemic physical examination revealed multiple nevi over the chest and back as well as plantar and palmar pits. *(Figure 2A, B)* Chest radiography revealed an incidental finding of a bifid third rib on the left. *(Figure 3)* With these findings, we diagnosed her condition as Gorlin-Goltz syndrome with multiple basal cell carcinoma on the face.

Our goal of treatment was complete excision of tumors with preservation of function and cosmesis. Following the National Comprehensive Cancer Network (NCCN) Guidelines[1] surgical excision with frozen section for adequate margins was performed. *(Figure 4)* Reconstruction with multiple skin grafts was performed to cover the defects. However, graft failures were noted over multiple sites two weeks post-operatively. *(Figure 5)*

Our patient continued to follow-up for a year but declined any offers of reconstructive surgery. She maintained a good disposition and was satisfied with her appearance despite a less than ideal aesthetic postoperative outcome. *(Figure 6)*

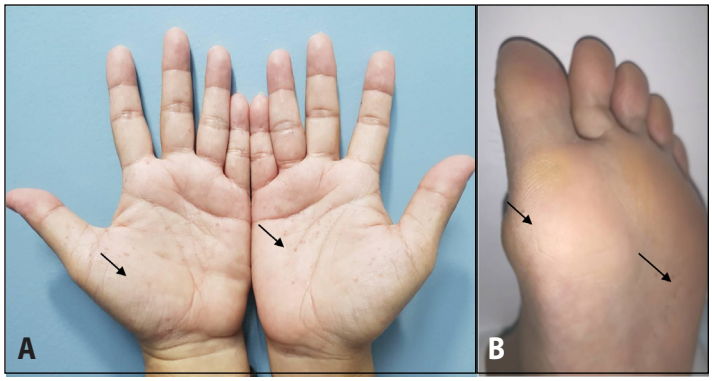

Figure 2A. Multiple pits in both palms (arrows); and **B**, multiple plantar pits (arrows).

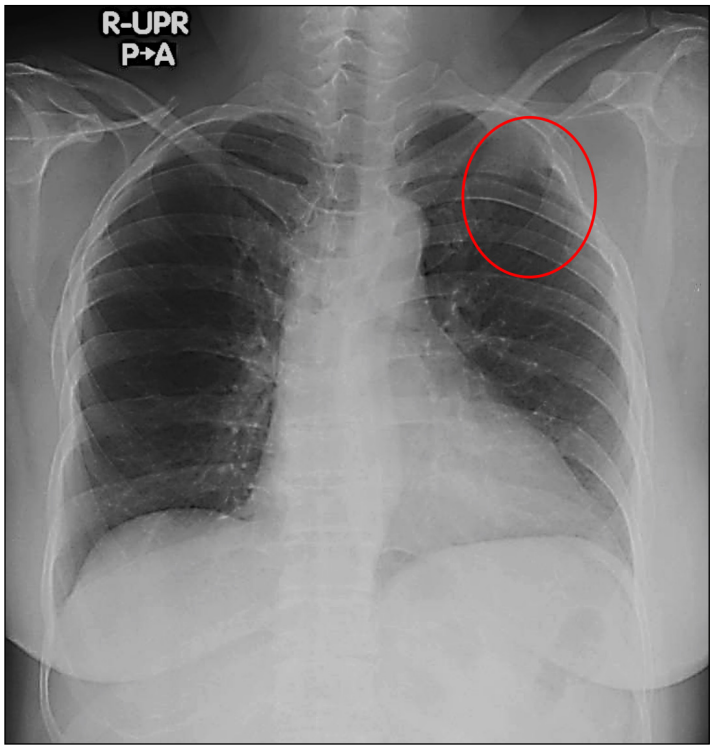

Figure 3. Chest X-Ray, Postero-Anterior (PA) upright view, showing bifid left third rib (encircled).

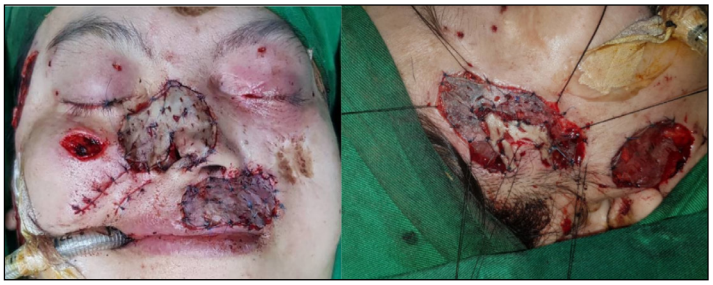

Figure 4. Multiple skin grafts to reconstruct the defects after wide excision of tumors.

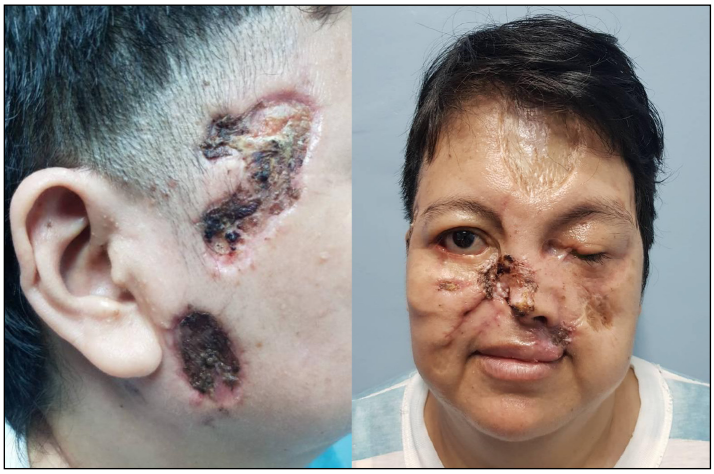

Figure 5. Two weeks post-operatively, graft failures were noted over the defects at the right zygomatic, infraauricular and paranasal areas, which were allowed to heal by secondary intention. (Photos published in full, with permission)

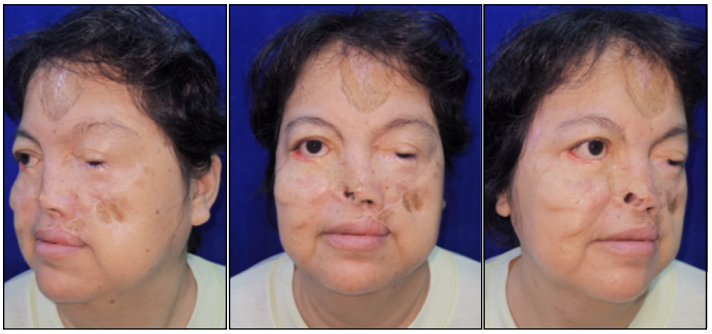

Figure 6. One year post-operative follow-up photos show no recurrence of lesions (Photos published in full, with permission)

DISCUSSION

Nevoid Basal Cell Carcinoma or Gorlin-Goltz Syndrome is a rare autosomal dominant syndrome with near complete penetrance and extreme variable expressivity.[2,3] This was first described in depth by Doctors Robert Gorlin and Robert Goltz in 1960. Genetic mutation in PTCH1 and SUFU that are related with the Hedgehog signalling pathway were identified in the pathogenesis of this disease.[2] Gorlin-Goltz syndrome commonly presents with dermatologic, odontogenic and neurologic findings and affected patients have developmental anomalies and predisposition to cancer, specifically basal cell carcinoma (BCC). The incidence of Gorlin-Goltz syndrome ranges from 1 in 50,000 to 1 in 560,000[4] with only one published case reported in the Philippines.[5]

To establish the diagnosis of Gorlin-Goltz syndrome, either one major and two minor criteria or two major criteria must be fulfilled.[6,7] Our patient presented with multiple BCC, bifid third left rib and palmar and plantar pits, fulfilling three major criteria.

Only 67% of patients diagnosed with Gorlin-Goltz syndrome present with basal cell carcinoma with an equal male to female ratio.[8] The mean age of BCC presentation in Gorlin-Goltz syndrome is roughly 25 years old and the probability of developing increases with age.[9] There are racial differences in the occurrence of BCC; higher in Caucasians than in African-Americans and Asians.[6,8] However, BCC in patients diagnosed with Gorlin-Goltz syndrome have the same histology and presentation as sporadic cases.

Palmar and plantar pits are among the common dermatologic findings in Gorlin-Goltz syndrome. These lesions are found in 45% to 87% of Gorlin-Goltz syndrome and the percentage rises with age.[6] The presence of palmar and plantar pits in a child should prompt a complete physical evaluation due to its association with other diseases.

A bifid or forked rib is a developmental abnormality in which the sternal end is cleaved in two. This may be asymptomatic and is oftentimes an incidental finding, and can be observed as an isolated defect or may be associated with other multisystem malformations. In the general population, it was reported to occur at 3 to 6.3 per 1,000.[10] Among the rib anomalies, bifid rib occurs in 28% of cases.[11] In Gorlin-Goltz syndrome, it occurs in 36.4% of cases.[12]

Gorlin-Goltz Syndrome has a wide spectrum of presentations varying from livable symptoms until adulthood to detrimental complications even during childhood. Since this is a genetic mutation, there is no cure for disease and treatment is symptomatic. In our case, there is higher chance of recurrence or new lesions that may require multiple surgical procedures in the future. Other lesions associated with this syndrome may still appear and immediate consultation is advised to prevent complications. Genetic counselling is highly advised since it has high inheritance.

In summary, our experience taught us that a high index of suspicion for syndromic disease and a complete physical examination are especially important in such cases. The diagnosis and management are challenging, and should consider the biopsychosocial context of the patient. As long as full disclosure of the condition is made and all options are clearly communicated, the patient's wishes should be respected.

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