Case Report

Giant Condyloma Acuminata or Buchke Lowenstein Tumours: A Rare Manifestation of Human Papillomavirus (HPV) Infection

Yong SKL[1], Ho SY[1] (✉), Abd Majid M[2], Ng WYL[2]

[1]Department of Radiology, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia
[2]Department of Radiology, Hospital Kuala Lumpur, 50586 Jalan Pahang, Kuala Lumpur, Malaysia

Abstract

Giant condylomata acuminata (GCA) or Buchke Lowenstein tumors are rare manifestation of Human Papillomavirus (HPV) infection. They are usually considered the intermediate state between benign condyloma and malignant squamous cell carcinoma. Usually these manifestations are related to HPV 6 & 11 infections and if left untreated can grow larger and is locally aggressive. The most important treatment method is surgical excision which differs from benign condyloma acuminatum cases due to its high degree of malignancy. This report presented a case of immunodeficient patient post renal transplant, with a presentation of large penile wart with histopathological findings of condyloma acuminata.

Keywords: Buschke-lowenstein tumor; condyloma acuminata; quality of life; radiology; squamous cell carcinoma

Correspondence:

Ho Shuang Yee. Department of Radiology, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603-91456917 E-mail: hsyee@hctm.ukm.edu.my

Date of submission: 10 Mar, 2025 Date of acceptance: 18 Apr, 2025

Case Report

A 26-year-old man presented to us with the complaint of a palpable mass in the penis extending to the suprapubic region that was originated 6 months ago, however denied any symptoms of urine leakage or other constitutional symptoms. Patient has a history of cadaveric renal transplant in 2003 and has been on immunosuppressant drugs. In the clinical examination of the patient, a large fungating "cauliflower like" mass was observed, originating from the penis extending to the suprapubic region (Fig. 1). Magnetic resonance imaging (MRI) showed no invasion to the tunica albuginea, corpus cavernosum and corpus spongiosum (Fig. 2 & 3). Laboratory exams did not reveal any characteristics sexual transmitted diseases, screening were negative. Surgical excision was decided. It was performed a local excision of the mass with positive margins. Histopathological examination reported surface parakeratosis, marked acanthosis, koilocytosis and papillomatosis were the main features and no evidence of dysplasia or invasive carcinoma, therefore verrucous carcinoma was excluded.

Discussion

Giant condyloma acuminata (GCA) was first described by Buschke and Lowenstein in 1925 in the penis and they named it "condyloma acuminate carcinoma-like" (7). GCA or also known as Buschke-Lowenstein tumour is a rare entity, with an incidence of 0.1% in the general population, with a male predilection (1,2). It has been known to represent the intermediate state between condyloma acuminata and squamous cell carcinoma (SCC) (8). Its manifestation is proven to be due to the combination of P53 mutation and Human Papillomavirus (HPV) (9), commonly associated with lower risk subtypes of HPV 6 & 11 (10). The tumour is usually slow growing in nature giving the resemblance of a "cauliflower-like" appearance and is

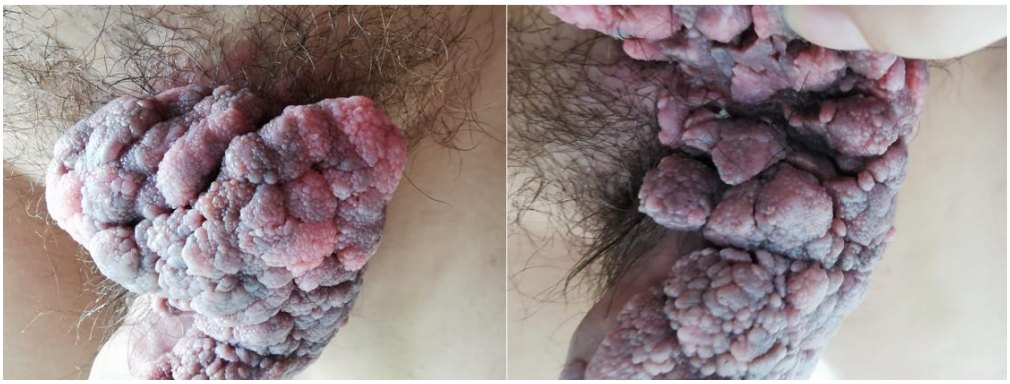

FIGURE 1: Clinical picture of the pubic region (with patient's consent). Large "cauliflower like" mass in the pubic region

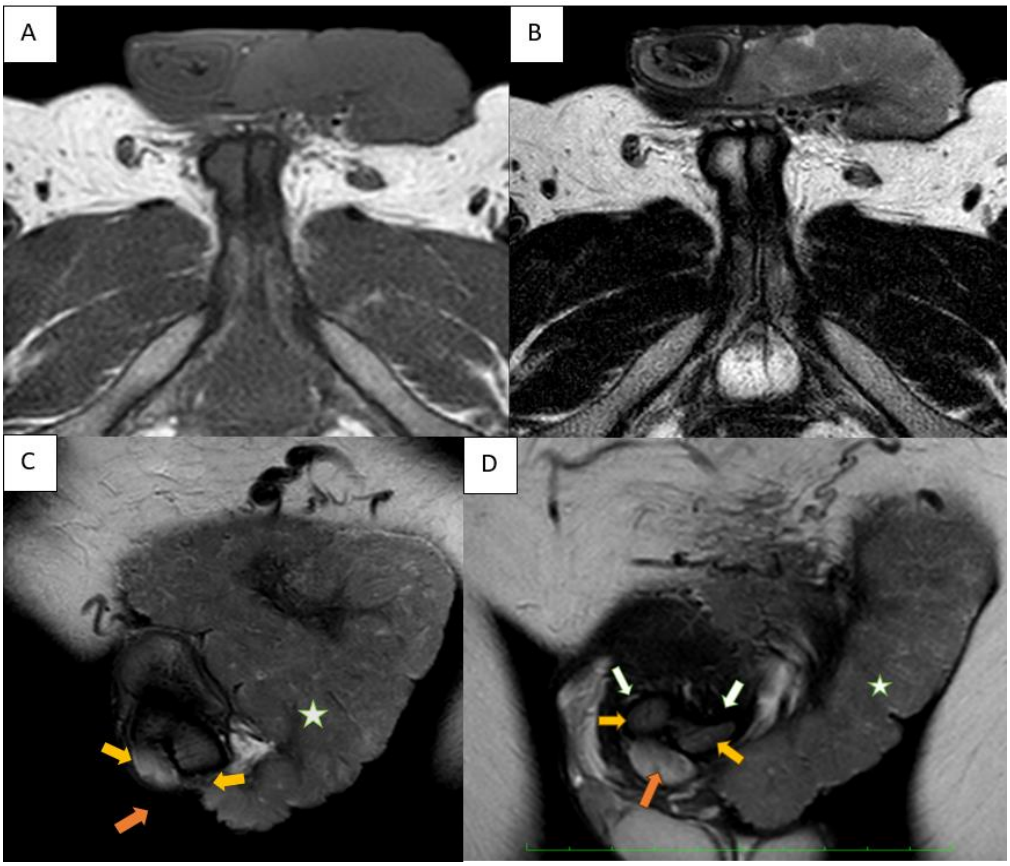

FIGURE 2: Pelvis MRI. Axial T1 (A) and T2 (B) weighted sequence. Lesion arising from pubic region involving the penis which was isointense in T1 and T2 weighted sequences. T2 weighted coronal images (C and D) showing the relation of the mass with its surrounding structures. T2 hypointense tunica albuginea (white arrows), paired corpora cavernosa (yellow arrows), single ventral corpus spongiosum, mass (white star).

usually locally aggressive and destructive. Other than its larger size, it can also be differentiated from benign condyloma by its growth patterns. In GCA or Buchke-Lowenstein tumours, two growth patterns are observed along with undulating papillomatosis of densely keratinised, well differentiated SCC (11). Its growth patterns, also can be differentiated from benign condyloma by characteristic of 'pushing' rather than 'infiltrating' effect that compresses and displaces underlying soft tissues (12).

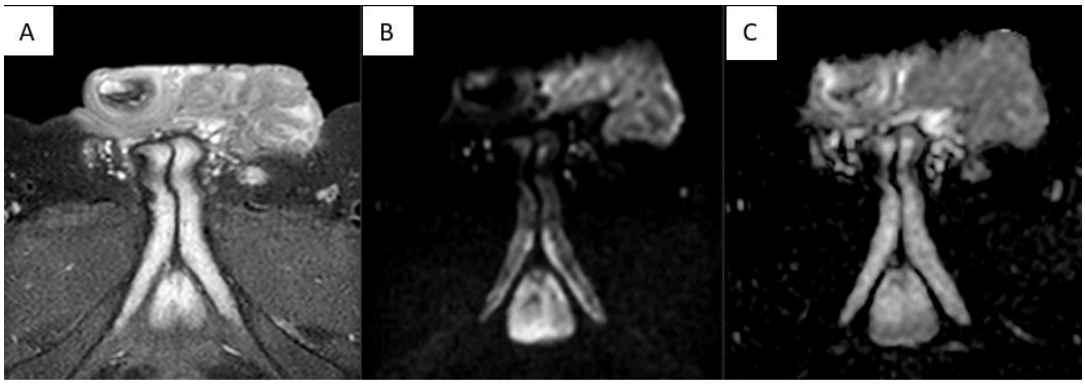

FIGURE 3: Pelvis MRI in axial slices showing heterogeneous contrast enhancement in fat-saturated T1 sequence (A) after injection of paramagnetic contrast medium with areas of restricted diffusion on high B-value of 1000 on DWI (B) and ADC (C) sequences

Some patients may be asymptomatic however some of the common presentation in most patients includes swelling with bleeding, pain, discharge, infection and itching (13). Due to its usually large tumour size and possible local infiltrative effect, patients' quality of life can often be reduced with associated anxiety, sexual dysfunction, and significant health concerns (13). When the tumour is severely infiltrative, multiple complications can occur such as constipation, fistula formation, skin ulceration, infection or abscess formation, as well as urinary obstruction or retention which could further lead to worsening morbidities. Due to such morbidities, therefore, early detection or suspicion with combination or clinical evaluation and imaging examinations are of importance. The role of early imaging examination is to determine the extent of local infiltrative features to aid surgical resection. The most common practice in regards to radiological examination is to first perform a Magnetic Resonance Imaging (MRI) (1) at the region of interest as it has greater sensitivity to assess involvement of adjacent structures in comparison to other cross sectional studies such as Computed Tomography (CT). However these tumours usually present with surrounding secondary local inflammatory reaction therefore possibility of overestimation needs to be considered. The imaging characteristics of GCA or Buchke-Lowenstein tumour on CT usually showing a pedunculated tumour, verrucous, which demonstrates soft tissue density with presence of intralesional vascularisation. On MRI, these lesions are commonly isointense to muscle on T1W, hyperintense on T2W, restricted diffusion on DWI/ADC mapping, with a heterogeneous enhancement on using intravenous paramagnetic contrast1. Although imaging can assist in identifying invasion and malignancy, histopathological examination (HPE) remains the gold standard to confirm a malignant transformation. Inguinal lymphadenopathy, as seen in other pelvic malignancies, can also be seen in the presence of this tumour However, it does not always indicate malignancy. Local or distant metastases are not usually detected with this tumour (14).

Surgical excision remains the most efficient treatment, particularly during the early stages of the disease (15). In some centres, systemic or local chemotherapy and radiotherapy can be a treatment choice for patients who cannot undergo surgery. This treatment method is usually considered in advanced locally invasive cases which deemed surgically irresectable and is thought to be a form of palliative treatment after incomplete excision as well as patients with multiple recurrences (16).

In cases where the tumour is detected in its advanced locally invasive state in which the lower gastrointestinal tract namely rectum and anal sphincter muscles, are involved or malignant transformation has occurred, other surgical resection options are considered such as abdominoperineal resection as well as temporary diverting colostomy to prevent faecal contamination before definitive surgical excision (17).

Conclusion

Radiological examination such as MRI plays a vital role in determining its invasion and pre-operative surgical margins as it is of importance to determine through histopathological examination whether a malignant transformation has occurred. Surgical excision or resection by stages can be performed to boost the best possible outcome for patients with GCA or Buchke-Lowenstein tumour however the optimal management of anogenital GCA has yet to be determined.

Author contribution: Conceptualisation: Simon Yong Kok Loong, Ho Shuang Yee; Data curation: Simon Yong Kok Loong, Malinda Abd Majid, Wendy Ng Yin Ling; Investigation: Simon Yong Kok Loong; Supervision: Ho Shuang Yee, Malinda Abd Majid, Wendy Ng Yin Ling; Validation: Ho Shuang Yee, Malinda Abd Majid, Wendy Ng Yin Ling; Writing-original draft: Simon Yong Kok Loong; Writing-review & editing: Simon Yong Kok Loong, Ho Shuang Yee, Malinda Abd Majid, Wendy Ng Yin Ling

Acknowledgement: The authors appreciate the help from all staff in Radiology UKMMC and Radiology Hospital Kuala Lumpur involved in the data collection. The authors also thank the research officer of the department, Farizwana Ridzwan for her technical help in preparing this article for submission.

Conflicts of interest statement and funding: None of the authors has a conflict of interest with the subject matter of the present study.

References

1. Montaña N, Labra A, Schiappacasse G. Giant condyloma acuminatum (Buschke-Lowenstein tumor). Series of seven cases and review of the literature. Rev Chil Radiol 2014; 20(2): 57-63.

2. Bocquet H, Bagot M. Benign tumors in viral origin. Encycl Med Chir Dermatologie. 1998; 12-125- A-10, 9p.

3. Wiedemann A, Diekmann WP, Holtmann G, Kracht H. Report of a case with giant condyloma (Buschke-Löwenstein tumor) localized in the bladder. J Urol 1995; 153(4): 1222-4.

4. del Pino M, Bleeker MCG, Quint WG, Snijders JF, Meijer CJLM, Steenbergen RD. Comprehensive analysis of human papillomavirus prevalence and the potential role of low-risk types in verrucous carcinoma. Mod Pathol 2012; 25: 1354-63.

5. Braga JC, Nadal SR, Stiepcich M, Framil VM, Muller H. BuschkeLöwenstein tumor: Identification of HPV type 6 and 11. An Bras Dermatol 2012; 87: 131-4.

6. Chu QD, Vezeridis MP, Libbey NP, Wanebo HJ. Giant condyloma acuminatum (Buschke-Löwenstein tumor) of the anorectal and perianal regions. Dis Colon Rectum 1994; 37: 950-7.

7. Buschke A, Löwenstein L. Giant condyloma acuminata of the Penis. J Mol Med 1925; 4: 1726-8.

8. Creasman C, Haas PA, Fox TA, Balazs M. Malignant transformation of anorectal giant condyloma acuminatum (Buschke-Löwenstein tumor). Dis Colon Rectum. 1989; 32: 481-7.

9. Antony F, Ardem-Jones M, Evans AV, Rosenbaum T, Russell-Jones R. Giant condyloma of Buschke–Löwenstein in association with erythroderma. Clin Exp Dermatol 2003; 28: 46-9.

10. Schwartz RA. Verrucous carcinoma of the skin and mucosa. J Am Acad Dermatol 1995; 32(1): 1-21.

11. Balázs M. Buschke-Löwenstein tumour. Virchows Archiv 1987; 410: 83-92.

12. Agarwal S, Nirwal GK, Singh H. Buschke–Löwenstein tumour of glans penis. Int J Surg Case Rep 2014; 5: 215-8.

13. Pennycook KB, McCready TA. Condyloma acuminata. 2022. StatPearls; Treasure Island (FL)

14. Patel SR, Al-Jabbari E, Kelly B, Bhargava P. CT imaging of condyloma acuminata. Radiol Case Rep. 2023; 18(9): 2900-2.

15. Paipiu HS, Duminici A, Olariu T, et al., Perianal giant condyloma acuminatum (Buschke-Lowenstein tumor). Case report and review of literature. Chirurgia 2011; 106(4): 535-9.

16. Wietfeldt ED, Thiele J. Malignancies of the anal margin and perianal skin. Clin Colon and Rectal Surg 2009; 22(2): 127-35.

17. De Toma G, Cavallaro A, Bitonti A, Polistena A, Onesti MG, Scuderi N. Surgical management of perianal giant condyloma acuminatum (Buschke-Lowenstein tumor): Report of three cases. Eur Surg Res 2006; 38(4): 418-22.