Clinical Oncology: Case Reports

Case Reports A SCITECHNOL JOURNAL

Supernumerary Nipples under Androgen Deprivation Treatment in a Patient with Prostate Cancer

Yuedan Zhou[1], Pierre Maroun[2], Andres Huertas[2*]

Abstract

Supernumerary nipple, also known as polythelia, is usually a benign congenital developmental abnormality often diagnosed in paediatric patients. We describe a 61-year-old male with prostate cancer, re-ceived prostatectomy, salvage radiotherapy in combination with andro-gen deprivation treatment by triptorelin injection. After three months of androgen deprivation treatment, three supernumerary nipples ap-peared on both side of the body. Two of the three lesions remained stable after six months. Polythelia often remains asymptomatic and become more obvious in periods when patients undergo signi icant hormonal alterations such as during pregnancy or puberty. Hormono-therapy in prostate cancer might have caused the development of supernu-merary nipples in our patient who probably had a pre-existing under-lying polythelia.

Keywords: Polythelia; Androgen deprivation treatment; Triptorelin; Prostate cancer

Introduction

In both boys and girls, polythelia, the presence of supernumerary nipples or nipple-areolar complexes, is the most commonly observed paediatric breast abnormality [1]. Supernumerary nipples are usually located along the embryonic mammary ridge, also known as the "milk line". This refers to the vertical line on the front of the body extending from the armpit to the groin [2]. It is usually visible at the time of birth [1, 3-5]. The incidence of polythelia is between 2% and 5.6%. It depends on factors such as gender and ethnicity. Polythelia is more common in males than in females. It is also more common in black populations than in white populations [4, 6, 7]. Polymastia, on the other hand, usually becomes visible after hormonal stimulation at puberty or during pregnancy. It is even susceptible to inflammatory or malignant changes [3, 8-10].

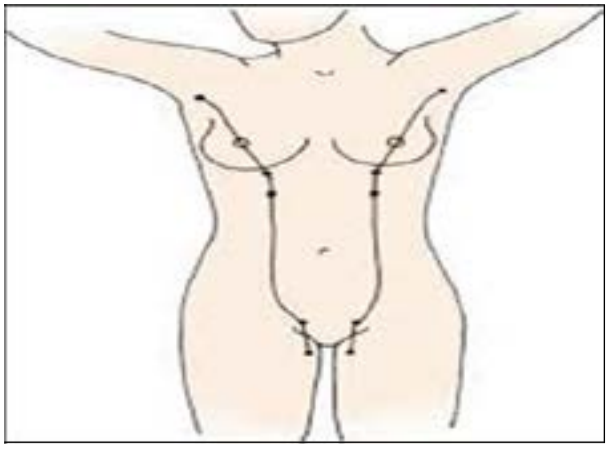
Triptorelin (Decapeptyl®) is a Gonadotropin-Releasing Hormone (GnRH) agonist commonly prescribed for localised and advanced prostate adenocarcinoma. It is an inhibitor of testosterone synthesis. The most common adverse effects observed in clinical trials and in clinical practice are hot flushes, fatigue, headache, sexual impotence, bone and joint pain, pain at the injection site, and insomnia. To our knowledge, patients treated with triptorelin or any of the androgen deprivation therapies (goserelin, leuprorelin, degarelix) have not been reported to develop de novo polythelia. In patients treated with abiraterone acetate or enzalutamide, no cases of polythelia have been reported.

Case Report

The 61-year-old black male was diagnosed with prostate adenocar-cinoma in December 2019. The disease was Gleason 7 (3 +4), Inter-national Society of Urological Pathology grading (ISUP grading 2), initial Prostate-Specific Antigen (PSA) was 12 ng/ml, with no region-al lymphatic involvement nor distant metastasis, therefore staged cT2N0M0. The patient underwent prostatectomy in March 2020. Post-operative PSA increased gradually from 0.04 ng/ml in June 2020 to 0.88 ng/ml in February 2022. A pelvic salvage radiation therapy (66 Gy in 33 fractions) in combination with a short Androgen Deprivation Therapy (ADT) by triptorelin (11.25 mg every 3 months, for 6 months in total) had been decided after a multidisciplinary team meeting. The triptorelin injection started in February 2022.

Three months after the first ADT injection, the patient experienced grade 2 hot flushes, fatigue, weight gain of 7 kg, and polythelia in 3 different sites (Figure 1). The patient initially stated that he didn't have any obvious supernumerary nipple. After careful questioning, the pa-tient recalled having a small abdominal lesion since his adolescence. The skin lesion on the left thigh, close to the groin, was considered a troublesome naevus that had recently increased in size. Two small-er lesions were found on the patient's right chest and right upper ab-domen on close clinical examination. All three lesions were located along the embryonic mammary ridge. The patient had no evidence of underlying swelling or pain on palpation. On clinical examination, he did not have polymastia (extra breast tissue) or tumour tissue under the ectopic nipple (supernumerary breast cancer).

At the clinical follow-up visit eight months after the second injection, that is, five months after the period of hormone therapy, the patients did not have any more hot flushes. The lesion on the root of the left thigh disappeared, while the other two lesions remained stable in size and appearance.



*Corresponding author: Andres Huertas, Institut de Radiothérapie du Sud de l'Oise, Creil, 60100, France, E-mail : andres.huertas@amethyst.fr

Received: December 28, 2023; Manuscript No: COCR-24-123729 **Editor Assigned:** January 04, 2024; PreQC Id: COCR-24-123729 (PQ) **Reviewed:** January 12, 2024; QC No: COCR-24-123729 (Q) **Revised:** January 18, 2024; Manuscript No: COCR-24-123729 (R) **Published:** January 29, 2024; DOI: 10.4172/cocr.6(12).328

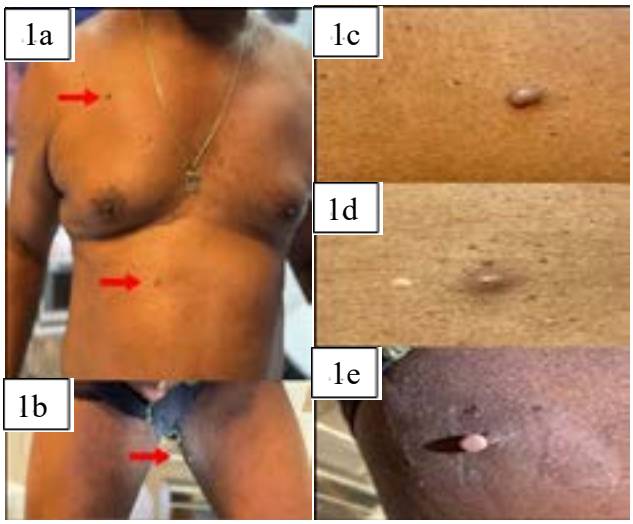


Figure 1. Three supernumerary nipples were identified on a 61-year-old black male patient.
(1a-b) All three lesions are located on the bilateral mammary ridges;(1b) The skin lesion on the left thigh was first to manifest. It was a dome shaped; light coloured well-demarcated papule;(1c) The upper lesion on the right chest is a dome shaped, skin coloured, well-elevated papule;(1d) The lower lesion on the right upper abdomen is only slightly elevated nodule with central elevation and a surrounding areola;(1e) It is the same lesion as in panel 1b, All three lesions' diameters were < 5 mm

Discussion

The human mammary gland derives from both ectoderm and mesoderm during embryonic development. It does so via well-coordinated signalling pathways, mainly involving cross-talk between the epithelia and the mesenchyme [11]. The dimorphic development of the breast begins at puberty. Pubertal changes are strongly dependent on sex hormones, especially oestrogen [12]. Nipple development during puberty includes an increase in the size and diameter of the nipple. During puberty, males do not undergo further breast development due to rising testosterone concentrations. However, 40% of boys develop transient gynaecomastia, probably due to relative oestrogen dominance [13].
There was little record to describe polythelia as a side effect of hormonotherapies in prostate cancer. Polythelia often remains asymptomatic and undetected. It can become more obvious in periods when patients undergo significant hormonal alterations such as during pregnancy or puberty [4]. The symptoms observed in our patient may be explained by the physiology of pubertal breast development. Androgen deprivation therapy has become the backbone of treatment for localized and advanced prostate cancer. Triptorelin, like other GnRH agonists, inhibits testosterone synthesis. In the adult male, estrogen regulates the re-absorption of the luminal fluid in the head of the epididymis. Disruption of estrogen function results in dilution of sperm entering the epididymis thereby causing infertility [14]. By inhibiting the production of testosterone, triptorelin can cause an imbalance between estrogen and testosterone in adult men. This can lead to the development of supernumerary nipples, especially in patients with has a pre-existing underlying polythelia condition.

Conclusion

Polythelia should be suspected in patients undergoing ADT if they develop (grow or appear de novo) cutaneous papules along the embryonic mammary ridges. The diagnosis relies on a thorough history and skin examination. This is especially true if a papule is known to have been present since childhood. Patients should be informed of this ADT-related adverse event. This will avoid unnecessary anxiety, skin biopsy or surgery. But the benign nature of polythelia favors continuation of ADT if otherwise well tolerated and necessary for the patient's prognosis.

Abbreviations

GnRH: Gonadotropin-Releasing Hormone ; ISUP grading: International Society of Urological Pathology grading ; PSA: Prostate-Specific Antigen ; ADT: Androgen Deprivation Therapy.

Acknowledgement

The authors wish to thank Dr. Charles Augereau and Dr. Khissal Ben Abdessalem for careful reviewing and proofreading.

Conflicts of Interest Disclosure

The authors declares that there are no conflicts of interest regarding the publication of this paper.

Funding

This paper did not receive any external funding.

References

1. Halleland HH, Balling E, Tei T, Arcieri S, Mertz H, et al. (2017). Polythelia in a 13-year old girl. Il Giornale di Chirurgia, 38(3), 143.
2. Sainsbury R. (2004). The breast: Comprehensive management of benign and malignant disorders. British Journal of Cancer, 91(9), 1754.
3. Patel RV, Govani D, Patel R, & Bhayani B. (2014). Adolescent right axillary accessory breast with galactorrhoea. BMJ Case Reports, 2014.
4. Grossl NA. (2000). Supernumerary breast tissue: historical perspectives and clinical features. Southern medical journal, 93(1), 29-32.
5. Loukas M, Clarke P, & Tubbs RS. (2007). Accessory breasts: a historical and current perspective. The American surgeon, 73(5), 525-528.
6. Schmidt H. (1998). Supernumerary nipples: prevalence, size, sex and side predilection–a prospective clinical study. European journal of pediatrics, 157, 821-823.
7. Famá F, Cicciu M, Sindoni A, Scarfó P, Pollicino A, et al. (2016). Prevalence of ectopic breast tissue and tumor: a 20-year single center experience. Clinical Breast Cancer, 16(4), 107-112.
8. Stone K, & Wheeler A. (2015). A review of anatomy, physiology, and benign pathology of the nipple. Annals of surgical oncology, 22, 3236-3240.
9. Marques-Antunes J, Cardoso F, Santos T, Nora M, Scigliano H, et al. (2022). Invasive Lobular Carcinoma Arising in Ectopic Breast Tissue: A Case Report. Cureus, 14(4).
10. Marinho-Soares C, & Pulido-Valente M. (2021). Axillary Mass after Delivery. New England Journal of Medicine, 385(5), 450-450.
11. Javed A, & Lteif A. (2013). Development of the human breast. In Seminars in plastic surgery. Thieme Medical Publishers, 27
12. Stingl J. (2011). Estrogen and progesterone in normal mammary gland development and in cancer. Hormones and Cancer, 2, 85-90..
13. Simmons PS, Diagnostic considerations in breast disorders of children and adolescents. Obstet Gynecol Clin North Am, 1992. 19(1): 91-102.
14. Hess RA, Bunick D, Lee KH, Bahr J, Taylor JA, et al.(1998). A role for oestrogens in the male reproductive system. Obstetrical & gynecological survey, 53(6), 359-360.

Author Afiliations Top
[1]*Department of Radiation Oncology, Centre Hospitalier Universitaire Amiens-Picardie, France*
[2]*Institute Radiothérapie du Sud de l'Oise, Creil, 60100, France*