Factors related to delayed treatment: A case report of a huge cutaneous horn and review of the literature

Marta Starnoni*, Giorgio De Santis, Francesca Lolli, Massimo Pinelli

Department of Medical and Surgical Sciences, Division of Plastic Surgery, University of Modena and Reggio Emilia, Policlinico of Modena, Largo Pozzo 71, 41124, Modena, Italy

ABSTRACT

We present a case of a man with a giant cutaneous horn over his frontal region. This case has been presented for the size of the lesion, due to delayed treatment, and to illustrate the reasons why the growth of this lesion has been possible in a western country, in the 21st century. It was a solitary, not painful lesion which caused significant aesthetic problems. The diagnosis was based on an ultrasonographic study and the treatment of choice was a surgical excision. This case is an opportunity to review the literature about the cutaneous horns, to talk about the main causes of delayed diagnosis and treatment of cutaneous lesions and, to define the role of the specialist in the assessment of emotions and patient support.

1. Introduction

Cutaneous horn is a slowly progressive keratinized skin lump in an antler-like configuration. The diagnosis is clinical, based on the lesion’s morphology [1]. The risk factors include radiations, chronic irritation and human papilloma virus [2]. Cutaneous horns may be symptoms of different diseases such as actinic keratosis (the most common horn cause [37.4%]), squamous cell carcinomas, lentigo malignant melanoma, verruca vulgaris, seborrhiec keratosis, molluscum contagiosum or Kaposi’s sarcoma [3,4].

We present a case of a 61-year-old Italian man with a giant cutaneous horn over his frontal region. This case has been found interesting because of the delayed medical treatment with an outstanding growth of the lesion. Our aim is to discuss the reasons of a such important skin lump growth in a developed country, in the 21st century. The delay can be influenced by sociodemographic variables like age, gender, ethnicity or SES (socioeconomic status). Older people [4] and people from low SES groups [6] didn’t seek for prompt medical care. The risk significantly increases in people who are living alone, in rural areas, and with a different culture [7]. Psychological factors may also play a role in patient’s delay. A high level of fear can minimize the seriousness of symptoms. This phenomenon is called health-related ‘defensive bias’ [6], ‘optimistic bias’ or ‘denial’ [5] which make seeking treatment less urgent and produce longer delay.

2. Case report

A 61-year-old man presented at our department with a 10 years history of a facial lesion (Fig. 1). There wasn’t a familiar history of malignant skin lesions. He didn’t consume alcohol and he wasn’t a smoker. In the past he has undergone a right hemicolectomy and a cardiac ablation for a SVPT (supraventricular paroxysmal tachycardia). He suffered from diabetes, hypertension, high cholesterol levels and obesity (BMI of 33). He lived alone in a small house in the countryside.

The patient came to our attention with a painless slowly growing lesion in the central portion of the frontal region, which gradually progressed from a small mass into a horn. It was a solitary lesion of about 10–11 cm in length with an important keratinized layer of epidermis. There was no regional lymphadenopathy or bleeding. The lesion caused significant aesthetic problems. The patient complained about the difficulty to sleep in prone position and to wear hats.

The lesion had a long history of progressive and slow growth not associated with any pain or discharge. There was no history of similar lesions elsewhere in the body. For these reasons the patient didn’t seek for prompt medical care. At first, he used to hide the horn in his hair and then when the lesion had grown, he wore a hat every day. After a few years the patient could no longer keep hidden the horn so he didn’t go out because of his shame. His sister helped him with grocery shopping and other everyday tasks. He was too scared of the diagnosis to see a specialist, he thought he could live with the lesion and he didn’t want to...
influenced by emotional status despite the attempt to make decisions based on evidence [8]. Patients are active participants of the care process and not passive recipients. The new situation impacts the emotional status and that attention is focused on the negative aspects [12], allowing a risk perception distorted and, consequently, suboptimal health decisions [5]. Doctors play important role in training patients to better process the diagnosis and to properly control their emotion in order to assess all the treatment options. On the other hand, there are situations and aspects independent from doctors, such as the sociodemographic factors (age, gender, SES or ethnicity), the family support, the living environment and the clinical variables of the lesion.

In 1558 was noted the earliest known case of cutaneous horn in a Welsh woman, but this skin lesion has been a matter of discussion to mankind since immemorial time. Even though cutaneous horn is a skin lesion that has been a matter of discussion to mankind since immemorial time. Even though cutaneous horn is a relatively uncommon entity, different cases have been described. For example, Bo Lin et al. wrote about a giant cutaneous horn on the cheek in a 83-year-old woman with an 18-year history of growth [1], Oded Nahlieli et al. reported four cases occurring in the head and neck region [13], G. N. Purohit et al. presented a case of a cutaneous horn following injury to pinna in a 55-year-old male farmer [14], William Leppard et al. reported a case of a giant cutaneous horn of the scalp in a 52-years-old African American female [15], Michal et al. described four cases of gigantic cutaneous horns of the scalp [16] and K. K. Sanjeeva et al. presented a giant cutaneous horn overlying a verruca over the left gluteal region in a 64-year-old man [17]. Despite this, no one has ever focused on the causes that have allowed such an important growth of these lesions. Each of these case reports referred to people older than 50 years old, with a long history of growth of the skin lesion, which has been diagnosed late. All these patients never complained about pain or any symptoms other than discomfort and privately had the personal feeling of stigmata and shame. Some of them hid the horn in their hair, beneath a veil or a hat (Table 1).

Patient’s delay is most frequently described as the “length of delay between the onset/discovery/recognition of signs and symptoms and a patient’s first visit to a health care/medical provider” [3]. The main factors involved in delay are sociodemographic, clinical or emotional. The doctor should manage these conditions, when possible. Older people [4] and people from low SES groups [6] had a tendency to hesitate in consulting an expert. Young subjects, with no experience of cancer, very seldom consider the possibility to have a malignant disease. The relationship between gender and patient’s delay is not very strong and the same holds true for education [5,6]. Patients who had been advised and supported by family were at significantly lower risk for delay; in contrast, the risk significantly increased in individuals of foreign ethnicity, those who were living in remote areas or alone, and those who were infrequently seeking medical care [7]. Therefore, in our patient, the lack of family support, the environment of rural life and the isolation, have played an important role in the delay of diagnosis.

With regards to clinical variables, in many cases previous medical history has an inverse correlation on an early visit to the doctor. Delay was significantly more frequent in individuals with serious co-morbidity and for lesions detected by somebody other than the patient. Univariate analysis of data [7] demonstrated that most obvious lesion’s characteristics that prompted patients to visit a specialist are: newly presenting lesions, size increase, colour change, accessible topography, presence of pain/discomfort, scabs/crusts or non-healing wound. In our case the patient had some co-morbidity (diabetes, hypertension, high BMI score) and had a right hemicolecotomy. In addition, the horn wasn’t painful, didn’t cause discomfort at the begin, and didn’t bleeding. All these elements have certainly contributed to the delay.

Apart from sociodemographic and clinical variables, psychological

---

**Fig. 1.** Cutaneous horn (frontal view).
factors, like fear, anxiety and worry also play a role in patient’s delay. Feelings can be elicited by pain or discomfort, presumed diagnosis, anticipated consequences of treatment and reinterpretations of the illness condition [5]. Depending on the cause of the fear and the way people manage it, the emotion of fear could lead to either help-seeking behaviour or to delay. An important predictor of a patient’s help-seeking behaviour seems to be the intensity of negative feelings. A systematic review [18] showed that high levels of fear were associated with earlier help-seeking in cancer patients. The effect of the low-intensity level of such emotions was more difficult to understand. On this basis, it can be expected that people who are more frightened will have a greater chance of getting medical help earlier than those without such a strong emotional response [19]. In a study of 860 patients treated for skin tumours (other than melanoma), denial was demonstrated in 71% of them, with a waiting time of more than ten years in 1.2% of the patients [19, 20]. The most common patient-specific factor responsible for delayed presentation for NMSC diagnosis and treatment is denial (including: thought it would go away, thought it wasn’t important, thought they could self-treat, too busy, afraid it might be something dangerous). In some cases, denial is indicative of a lack of understanding or recognition of the problem, not a psychologic defence mechanism. As well as denial, fatalism, often expressed as “what will be will be” or “there is a reason for everything, I do not believe any intervention may change my life”, occasionally backed by religious beliefs, is also identified as a significant factor associated with delayed presentation. Denial and fatalism were definitely key elements for the delayed diagnosis and treatment in our patient. He thought he could live with the horn and maybe it would go away without surgery. Anyway, he was too scared for any treatment. Coherently, training patients in their personal interoceptive ability will help them better evaluate the event, the assessment of the emotions can guide specialists in the individuation of the intervention to moderate it. Considering which factors can moderate the role of emotion is crucial for improving the patient’s decision-making process [21–26].

At the end of his diagnostic-therapeutic process, the patient was extremely satisfied of the final result and regret not having sought medical advice before.

4. Conclusion

Cutaneous horns are challenging lesions with social and medical implications. We reported this particular case for several reasons: his giant size, the lack of symptoms, the aesthetic and psychological problems that his lesion caused. In the present case has been highlighted an important personal neglect, the absence of awareness, superstitious beliefs and misperception.
Sources of funding

No study sponsors.

Ethical approval

No ethical approval needed. We describe a case report and review of the literature.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Marta Starnoni: study concept, data interpretation.
Giorgio De Santis: study concept.
Francesca Lolli: writing the paper.
Massimo Pinelli: study concept, data interpretation.

Registration of research studies

The research does not involve human participants but it is a case report and review of the literature.

Guarantor

Marta Starnoni.
Giorgio De Santis.
Francesca Lolli.
Massimo Pinelli.

Informed consent

The patient gave informed consent for the publication of this case report.

Provenance and peer review

Not commissioned, externally peer reviewed.

Table 1

Summary of reported cases of cutaneous horn.

| Gender | Age | Nationality | Employment | Location                | Dimension             | Clinic                      | Growth Time | Histopathological examination                                                                 | Recurrence after 1 year |
|--------|-----|-------------|------------|-------------------------|-----------------------|----------------------------|--------------|---------------------------------------------------------------------------------------------|--------------------------|
| Female | 83  | NS          | None       | Cheek                   | Length: 5.5cm Width at the base: 3.0 | None                      | 18 years     | Squamous epithelial cells + trichilemmal keratinized debris                                | None                     |
| Male   | 50  | NS          | Farmer     | Lower Lip               | NS                     | Occasional soreness        | 2 years      | NS                                                                                           | NS                       |
| Woman  | 70  | Bedouin     | None       | Malar Region            | 2.5 × 2.5cm            | NS                        | 7 years      | NS                                                                                           | NS                       |
| Man    | 69  | NS          | Farmer     | Helix of Ear            | 1 × 0.8cm              | NS                        | 54 years     | NS                                                                                           | NS                       |
| Woman  | 72  | European    | None       | Sternal Notch           | 3 × 3cm                | NS                        | Several years | NS                                                                                           | NS                       |
| Male   | 55  | NS          | Farmer     | Pinna                   | Length: 6cm Width: 0.5cm | NS                        | 2 months     | Hyperkeratosis and hyperplasia of squamous epithelium without evidence of malignancy        | NS                       |
| Female | 52  | African American | NS  | Scalp                   | Length: 12cm Width: 3cm | Drainage and Crusting     | Several years | Verruca vulgaris                                                                             | None                     |
| Female | 55  | European    | NS         | Scalp                   | Length: 25cm Width: 2.5cm | None                      | 30 years     | Squamous epithelial cells and tricholemmal keratinized debris                                | None                     |
| Female | 78  | NS          | None       | Scalp                   | Length: 20cm Width: 2cm | NS                        | 8 years      | Squamous epithelial cells and tricholemmal keratinized debris                                | None                     |
| Female | 63  | NS          | NS         | Scalp                   | Length: 18cm Width: 2.5cm | None                      | 15 years     | Squamous epithelial cells and tricholemmal keratinized debris                                | None                     |
| Female | 83  | NS          | None       | Scalp                   | Length: 17cm Width: 2cm | NS                        | 10 years     | Squamous epithelial cells and tricholemmal keratinized debris                                | None                     |
| K. K.  | 64  | NS          | NS         | Gluteal Region          | Length: 15cm Width: 10cm | Discomfort                | Several years | Hyperkeratosis and papillomatosis without evidence of malignancy                            | NS                       |
| Male   | 52  | NS          | Office worker | Right Shoulder         | Length: 30cm Width: 17cm | Functional Impotence and Pain | 20 years     | Metatypical invasive carcinoma with epidermoid inflection                                   | None                     |
| Male   | 62  | NS          | None       | Pubis                   | 14 × 12 × 11cm          | NS                        | 6 months     | Undifferentiated primary skin cancer with neuroendocrine component                           | NS                       |
| Female | 78  | NS          | None       | Right Elbow             | Major axis: 11cm        | Bleeding                  | Several years | Porocarcinoma                                                                                | Yes                      |
Trial registry number
Nothing to declare.

Declaration of competing interest
No conflict of interest.

Appendix A. Supplementary data
Supplementary data related to this article can be found at https://doi.org/10.1016/j.amsu.2020.05.041.

References
[1] Riaz A. Agha, Mimi R. Borrelli, Reem Farwana, Kiron Koshy, Alexander J. Fowler, Dennis P. Orgill, For the SCARE Group. The SCARE 2018 statement: updating consensus Surgical Case Report (S CARE) guidelines, Int. J. Surg. 60 (2018) 132–136.
[2] B. Lin, H. Yang, H. Yang, S. Shen, F. Wang, Y. Wang, A giant cutaneous horn on the cheek, Facial Plast. Surg. 34 (6) (2018 Dec) 663–664, https://doi.org/10.1055/s-0038-1675625, Epub 2018 Dec 28. PMID: 30593079.
[3] R.H. Schosser, S.J. Hodge, C.R. Gaba, L.G. Owen, Cutaneous horns: a histopathologic study, South. Med. J. 72 (9) (1979 Sep) 1129–1131, https://doi.org/10.1097/00007611-197909000-00014. PMID: 472837.
[4] P.A. Nair, A.H. Chaudhary, M.J. Mehta, Actinic keratosis underlying cutaneous horn at an unusual site—a case report, Ecancermedicalscience 7 (2013 Nov 26) 376, https://doi.org/10.3332/ecancer.2013.376. PMID: 24294287; PMCID: PMC3842183.
[5] T. Dubayova, J.P. van Dijk, I. Nagyova, J. Rosenberger, E. Havlikova, Z. Gudovtina, B. Middel, J.W. Groothoff, The impact of the intensity of fear on patient’s delay regarding health care seeking behavior: a systematic review, Int. J. Publ. Health 55 (5) (2010 Oct) 459–468, https://doi.org/10.1007/s00038-010-0149-0. Epub 2010 May 14. PMID: 20467882; PMCID: PMC2941081.
[6] L.S. Caplan, K.J. Helzlsouer, Delay in breast cancer: a review of the literature, Publ. Health 55 (11) (1997 Nov) 1309–1311, https://doi.org/10.1016/S0038-1675(97)00910-7. PMID: 9371125.
[7] D. Kakagia, G. Trypsiannis, M. Karanikas, A. Mitrakas, N. Lyratzopoulos, E. Peters, K.D. McCaul, M. Stefanek, W. Nelson, A heuristics approach to making research, Ann. Behav. Med. 31 (1) (2006 Feb) 45–52, https://doi.org/10.1097/00007611-197909000-00014. PMID: 16472558.
[8] J.L. Brown, D. Whiting, H.G. Fielder, P. Saini, H. Beesley, C. Holcombe, S. Holcombe, L. Greenhalgh, L. Fairburn, P. Salmon, Qualitative analysis of how decisions that they want risk-reducing mastectomy, and the implications for surgeons in responding to emotionally-motivated patient requests, PloS One 12 (5) (2017 May 26), e0178392, https://doi.org/10.1371/journal.pone.0178392. PMID: 28552971; PMCID: PMC5446175.
[9] L.S. Caplan, K.J. Helzlsouer, Delay in breast cancer: a review of the literature, J. Oral Maxillofac. Surg. 55 (11) (1997 Nov) 1309–1311, https://doi.org/10.1016/S0038-1675(97)00910-7. PMID: 9371125.
[10] M. Starnoni, B. Mackintosh, Induced emotional interpretation bias and anxiety, J. Abnorm. Psychol. 109 (4) (2000 Nov) 602–615. PMID: 11195984.
[11] L. Haileli, A.M. Baruchin, Y. Shapira, D. Ben-Dor, Cutaneous horns occurring on the head and neck region: report of four cases and review of the literature, J. Oral Maxillofac. Surg. 55 (11) (1997 Nov) 1309–1311, https://doi.org/10.7500/joms.1997.9709100.7. PMID: 9371125.
[12] G.N. Purohit, N. Agarwal, R. Agarwal, Cutaneous horn following injury to pinna, Indian J. Otologyngol. Head Neck Surg. 63 (Suppl 1) (2011 Jul) 47–48, https://doi.org/10.1007/s12071-011-0189-7. Epub 2011 Apr 13. PMID: 21754836; PMCID: PMC3146658.
[13] M. Gdovinova, B. Middel, J.W. Groothoff, The impact of the intensity of fear on patient’s delay regarding health care seeking behavior: a systematic review, Int. J. Publ. Health 55 (5) (2010 Oct) 459–468, https://doi.org/10.1007/s00038-010-0149-0. Epub 2010 May 14. PMID: 20467882; PMCID: PMC2941081.
[14] M. Alam, L.H. Goldberg, S. Silapunt, E.S. Gardner, S.S. Strom, A.W. Rademaker, D. Cheek, Facial Plast. Surg. 34 (6) (2018 Dec) 663–664, https://doi.org/10.1016/j.fams.2018.09.005. Epub 2018 Dec 28. PMID: 30593079.
[15] E. Benanti, M. Starnoni, A. Spaggiari, M. Pinelli, G. De Santis, Objective selection criteria between ALT and radial forearm flap in oral soft tissues reconstruction, Plast Reconstr. Aesthetic Surg. 67 (1) (2014 Jan) e22–e24, https://doi.org/10.1016/j.bjps.2013.08.013. Epub 2013 Aug 22. PMID: 23972536.
[16] G. Kakagia, K. Margolis, Delayed treatment and continued growth of nonmelanoma skin cancer, J. Am. Acad. Dermatol. 64 (5) (2011 May) 839–848, https://doi.org/10.1016/j.jaad.2010.06.028. Epub 2010 May 30. PMID: 2105843.
[17] A. Polychronidis, Patient-related delay in presentation for cutaneous squamous cell carcinoma. A cross-sectional clinical study, Onkologie 36 (12) (2013) 738–744, https://doi.org/10.1159/000356834. Epub 2013 Nov 20. PMID: 24356565.
[18] E. Peters, K.D. McCaul, M. Stefanek, W. Nelson, A heuristics approach to understanding cancer risk perception: contributions from decision and decision-making research, Ann. Behav. Med. 31 (1) (2006 Feb) 45–52, https://doi.org/10.1097/00007611-197909000-00014. PMID: 16472558.
[19] E. Reyna, W.L. Nelson, P.K. Han, M.P. Pignone, Decision making and cancer, Am. Psychol. 70 (2) (2015 Feb-Mar) 105–118, https://doi.org/10.1037/a0036834. PMID: 25730716; PMCID: PMC4347999.
[20] S.L. Brown, D. Whiting, H.G. Fielder, P. Saini, H. Beesley, C. Holcombe, S. Holcombe, L. Greenhalgh, L. Fairburn, P. Salmon, Qualitative analysis of how decisions that they want risk-reducing mastectomy, and the implications for surgeons in responding to emotionally-motivated patient requests, PloS One 12 (5) (2017 May 26), e0178392, https://doi.org/10.1371/journal.pone.0178392. PMID: 28552971; PMCID: PMC5446175.