Introduction

Basal cell carcinoma (BCC) is the most common type of skin cancer in humans, accounting for approximately 80% of all nonmelanoma skin cancers. It primarily affects sun-exposed areas of the body, particularly the head and neck region, and is directly proportional to the number of pilosebaceous units present. Fair-skinned individuals with a history of chronic sun exposure, especially those engaged in outdoor occupations or activities, have a higher incidence of developing BCC [1]. The incidence of BCC has been on the rise over the past few decades, attributed to factors such as increased ultraviolet radiation exposure, changes in recreational habits, and an aging population.

While BCC is the most common cutaneous malignancy, subcutaneous BCC without epidermal involvement is rare. This is because BCC arises from the basal layer of the epidermis. Subcutaneous BCC lacks the visible skin lesion commonly seen in BCC, making diagnosis challenging. Additionally, even with ultrasound (US)-guided biopsy, it can be challenging to definitively differentiate between subcutaneous BCC and trichoblastoma, which is a rare lesion characterized by the presence of follicular germinative cells [2]. Distinguishing between subcutaneous BCC and trichoblastoma is crucial, as the former typically exhibits malignant behavior, while the latter is benign. The management and prognosis of these two entities differ significantly, underscoring the importance of accurate diagnosis and appropriate treatment selection.

Here, we present a case where the patient exhibited a subcutaneous mass that initially appeared as a mild hypertrophic scar of skin color at the site where the surgical drain was inserted post-hysterectomy, later diagnosed as BCC. This illustrates the impor-
tance of considering BCC even in the absence of typical visible skin lesions, particularly in areas with previous trauma. Written informed consent was obtained from the patient for this publication.

**Case**

An 81-year-old female with a history of hysterectomy due to an ectopic pregnancy 50 years prior presented to the clinic with a subcutaneous mass in the lower abdomen that had been progressively enlarging over the previous 6 months. The mass exhibited only a slight raised scar the color of skin at the location where a surgical drain had been inserted following hysterectomy. The patient underwent a thorough physical examination, upon which the mass was found to be firm on palpation and did not cause pain or tenderness (Fig. 1).

Based on the physical examination, an US examination was performed, which indicated a nonspecific soft tissue tumor, raising the suspicion of a desmoid tumor (Fig. 2). Subsequently, abdominal magnetic resonance imaging (MRI) was conducted to further delineate the lesion. The abdominal MRI revealed a well-defined ovoid soft tissue mass measuring approximately 3.3×1.7×2.2 cm in size, located at the left lower abdominal subcutaneous layer (Fig. 3). Based on these findings, a US-guided biopsy was recommended to the patient for a definitive diagnosis.

Histopathological analysis of the biopsy specimen revealed a basaloid neoplasm with desmoplastic stroma. This finding prompted the need for differential diagnosis between BCC and trichoblastoma (Fig. 4). To establish a definitive diagnosis and provide appropriate management, wide excision of the mass was performed.

**Fig. 1.** Preoperative photographs. (A, B) A firm mass (yellow arrowhead), present on the patient with a 0.5 cm length mild hypertrophic scar (yellow arrow) of skin color, but without pain or tenderness, showed a progressive increase in size over the past 6 months.

**Fig. 2.** Preoperative sonography. The preoperative sonography image of the mass, where precise differentiation was challenging, leading to a nonspecific soft tissue tumor diagnosis.

**Fig. 3.** Preoperative magnetic resonance imaging (MRI) images. The preoperative MRI image of the mass (yellow arrowhead) posed challenges in precise differentiation, resulting in a nonspecific soft tissue tumor diagnosis, which prompted further correlation with pathology results. (A) Axial view. (B) Coronal view.
with a 5 mm resection margin was performed (Fig. 5), followed by primary closure.

The excised tissue was subjected to further histopathological examination, which confirmed the presence of a basaloid neoplasm not connected to the epidermis. Immunohistochemical staining was performed to aid the diagnosis. Based on the absence of staining in the stroma for CD10 and CD34, and diffuse staining in the tumor nest for Bcl-2, a diagnosis of BCC was decided (Fig. 6).

Follow-up surveillance was conducted to monitor patient progress. An MRI of the abdominal wall was performed 6 months postoperatively. Imaging revealed no definite evidence of tumor recurrence and no significant lymph node enlargement. After 6 months postoperative, the patient declined further MRI and US scans.

**Discussion**

In 1828, Marjolin and colleagues first discussed the potential influence of trauma on the development of skin malignancies. Subsequently, various investigators have recorded instances of wounds or scar tissue undergoing malignant transformation. Originally coined to describe cancer arising from a scar caused by burn injuries, the term “Marjolin’s ulcer” has now been expanded to encompass all malignancies originating from scar tissue. Noodleman and Pollack [3] reported the findings of a retrospective analysis involving 1,774 BCC patients, revealing a positive history of previous injury in 7.3% of the lesions. In 2004, Ozyazgan and Kontas [4] mentioned the contribution of trauma and scar tissue to the pathogenesis of BCC. As mentioned above, while there are some publications addressing posttraumatic BCC, none of them have reported on subcutaneous BCC. In fact, there have been very few studies documenting subcutaneous BCC, with only two cases reported. Voris reported subcutaneous BCC on the upper back [5], while Rouhani et al. [6] reported subcutaneous BCC on the posterior shoulder. However, these two lesions differed from the subcutaneous BCC addressed in this report, as they lacked a history of trauma or similar factors. Therefore, the occurrence of subcutaneous BCC at a previous drain insertion site, as seen in this case, is considered significant as it has not been reported previously.

In our case, sonography was performed, as there were no discernible skin lesions to differentiate the lesion, apart from the previous drain insertion site scar. A nonspecific soft tissue tumor was identified, prompting a recommendation for a US-guided...
biopsy, which was subsequently carried out. The biopsy revealed a basaloid neoplasm with desmoplastic stroma, but differentiation between trichoblastoma and BCC was not possible for the patient. Considering the patient's higher likelihood of BCC due to the history of surgical trauma at the site, the decision was made to perform a wide excision in a single procedure rather than a standard excision.

Despite undergoing preoperative US-guided biopsy, achieving a definitive distinction between BCC and trichoblastoma was challenging. In such cases, incorporating immunohistochemical studies alongside histology can offer valuable assistance in distinguishing between these two conditions. BCC shares similar histological features with trichoblastoma, including the presence of fissures between the epithelium and stroma, epithelial nests, and cells arranged in a palisading pattern at the tumor periphery. However, there are differences that can aid in distinguishing the two. Trichoblastoma stains positive for stromal CD10 and CD34 and exhibits peripheral Bcl-2 location [7]. In contrast, BCC stains negative for stromal CD10 and CD34 and exhibits a Bcl-2 pattern that is diffuse, widespread, and equally distributed across all tumor nests. Therefore, the use of immunohistochemical markers, CD10, CD34, and Bcl-2, could be helpful tools in diagnosing BCC, providing additional information to support accurate differentiation from trichoblastoma.

While there is little known about the pathophysiology of ma-
lignant transformation in scar tissue, particularly regarding BCC, the following assumptions on the mechanism are possible. One assumption would be that the drain insertion did not cause the lesion, a subcutaneous BCC. From a histological viewpoint, BCCs originate from the basal layer of the epidermis and the pilosebaceous adnexa. Tumor proliferation leads to three-dimensional growth, often presenting with an early skin eruption described clinically. In the current case, deep and peripheral growth was observed without superficial extension. While highly uncommon, it is reasonable to consider this growth pattern as a plausible explanation for this patient [5].

Otherwise, if we assume trauma from drain insertion influenced the development of subcutaneous BCC, there are several possible reasons. Firstly, tumors developing within dense scar tissue may experience immunological privilege, hindering lymphocyte infiltration and disrupting the immune surveillance system. Consequently, the tumor can shield itself from human defense mechanisms until it reaches a critical size [3]. Secondly, trauma can displace epidermal cells into the dermis, initiating foreign body reactions and disrupting the normal healing process, thus increasing susceptibility to damage, which can lead to BCC formation [8]. If there is drain penetration, such as in our case, displacement of epidermal cells into the dermis may have led to the development of subcutaneous BCC without epidermal involvement or visible skin lesions.

In conclusion, this case underscores the importance of considering US-guided biopsy, in addition to preoperative sonography, for patients with a history of trauma at the site, even in the absence of typical visible skin lesions suggesting malignancy. But even after performing a US-guided biopsy, distinguishing between trichoblastoma and BCC can be challenging. In such circumstances, opting for wide excision in a single procedure rather than excision alone can significantly help reduce the risk of recurrence and the number of surgeries required, as highlighted in this case.

**Conflict of interest**

No potential conflict of interest relevant to this article was reported.

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