

Take Home Points

- Clinical findings of erythema elevatum diutinum (EED) are similar to that of keloids.
- EEDs can be misdiagnosed as Keloids on several grounds; they can both appear morphologically similar, exhibit as stiff lesions, demonstrate chronic inflammation of the reticular dermis, and appear anywhere.
- Histopathological examination is the only definitive method of differentiating

Background

- Aberrant response to the wound healing process lead to formation of Keloids, characterized by excessive collagen deposition and dysregulated growth [1].
- They can manifest anywhere on the body, but they tend to develop more severely around joints through extensional stimulation of the scar [2].
- In contrast, EED is a rare type of vasculitis that appear more commonly on friction sites including extensor surfaces of the extremities and dorsal joints. They present as red-brown papules or plaques [3].
- In EED, significant fibrosis is evident with rich neutrophilic infiltrate in the walls of the microvasculature [5].
- keloids demonstrate an invasive tumor-like growth in the papillary dermis with thickened but flattened epidermis, hyalinized collagen bundles in the dermis, and an obliterated papillary-reticular boundary [6].

Case Presentation

- 42-year-old woman presented with firm, brown-colored tumorous nodules on her bilateral lower extremities (Fig.1).
- Initially diagnosed with keloids and subsequently treated with triamcinolone injection and steroid tape without any relief.
- At the keloid specialty outpatient department in Nippon Medical School Hospital, the examination revealed dark-brown colored nodular lesions on bilateral knees, the right tibial region, dorsum of the left foot, the right calcaneal area, and the lateral side of the left foot (Fig. 1A).
- Ultimately, the original diagnosis of keloids was reaffirmed and surgery along with radiation therapy was initiated.
- Subsequent histopathological examination revealed tuberous lesions in the dermis, increased wired collagen fibers, neutrophilic infiltrate with nuclear dust, and edematous endothelial cells in the small vessels (Fig. 2).
- Through these histological findings, the patient was subsequently diagnosed with EED.

Discussion

- EED's are more reddish-brown or burgundy in color, morphologically appear as plaques or papules [10].
- Reports indicate an arthus-type immunological reaction to an antigen with immune complex deposition in the cutaneous microvasculature [11], namely a type III hypersensitivity reaction, might be the root cause of EED.
- Histopathological examination of EED lesions reveals a predominantly neutrophilic infiltrate with broken nuclei and significant fibrosis in the entire layer thickness of the dermis [4].
- Keloids are a type of abnormal scarring that can result from trauma and burns. Usually, they are diagnosed only through clinical findings.
- Keloids also originate from chronic inflammation of the reticular dermis, and this helps explain why these conditions may resemble each other [12].
- EED lesions that appear similarly to Keloids have a high likelihood of being misdiagnosed and mismanaged as histological assessment is the only way to accurately distinguish between them.
- Both conditions can appear anywhere on the body. This characteristic further complicates the process of differentiating between them.
- In the case reported here, the appearance of the patient's EED scars were judged to be quite similar to keloids on two specific grounds:
 - Firstly, the nodules' coloring was similar to that of keloids.
 - Secondly, the protuberance of her scars gave them the appearance of keloids.
 - Both conditions display as an increased thickness in the dermic layer [2,3], without any significant changes in the epidermis.
 - As such, EED lesions and Keloids can appear morphologically similar and demonstrate a similar clinical course.

Results



Figure 1. (A) Preoperative view with the EED nodules on both knees, right tibial region, left dorsum of foot, right calcaneal area, and lateral side of the left foot. (B) Design of the local flap. (C) Immediately after surgery. (D) 6 months post-operative view.

Conclusions

- Diagnosing cutaneous manifestations simply through clinical findings might have its merits as the most cost and time effective method of diagnosis.
- However, there are instances where further investigation is necessary for accuracy.
- When treating keloidal lesions on friction sites, EED should be considered as a possible diagnosis, and a biopsy should be performed to confirm before administering treatment .
- This report indicates that the medical field could benefit from an inquiry into the mechanism of mass formations of EED nodules that morphologically appear similar to keloids .

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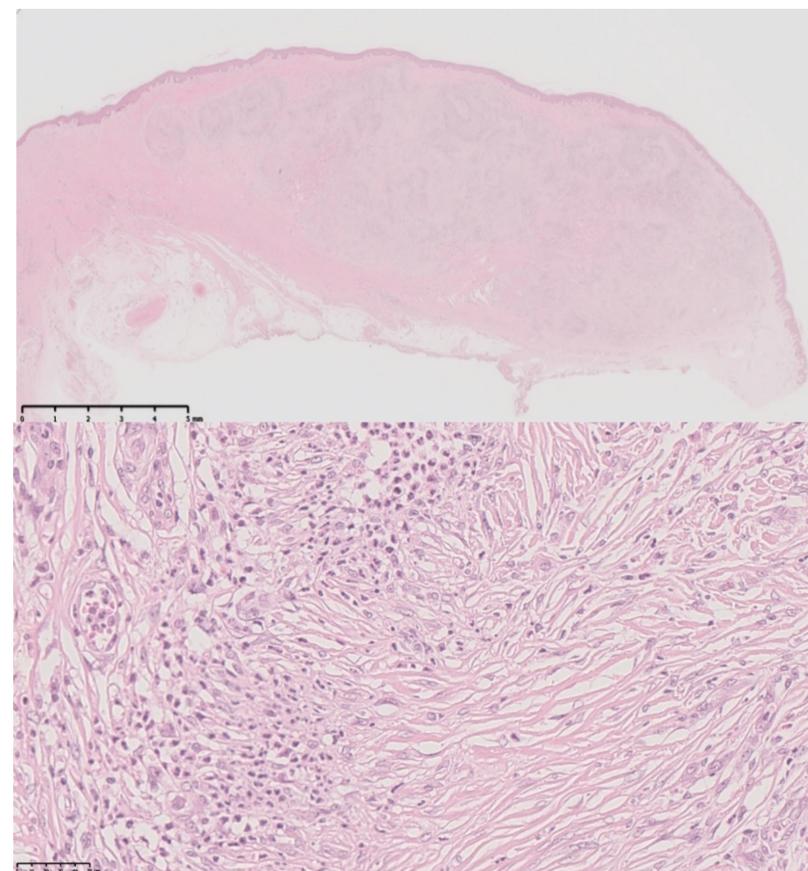


Figure 2. Nodular lesions in the dermis. In the lesions, increasing characteristic wired collagen fibers, infiltration of neutrophils, and swelling of small endovascular cells are presented.