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Case Report General Surgery

From open wound treatment to primary soft-tissue non-Hodgkin lymphoma diagnosis; a challenging case report

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ABSTRACT

Primary soft-tissue extranodal lymphomas are rare clinical entities. By their natures, they can cause significant swelling around the affected extremities, and they can be easily misdiagnosed with other conditions like sarcomas. We share an unfortunate experience of a young male patient who was admitted to another clinic with complaints of a large mass in his right thigh, the patient has been diagnosed with anaplastic pleomorphic sarcoma, and he was scheduled for surgery. The patient refused the operation and was admitted to our emergency clinic with an open wound on his right thigh. Successful open wound management was achieved with antibiotic therapy, tissue debridement, larvae therapy, and Vacuum-assisted closure. Meanwhile, the pathologic re-examination revealed diffuse large B-cell lymphoma. After an uneventful follow-up, the patient was referred to the hematology clinic. This case highlights the importance of considering alternative diagnoses before making surgical intervention decisions that may result in unpleasing consequences.

Keywords: DLBCL; Lucilia sericata larvae; non-Hodgkin lymphoma; open wound; pleomorphic sarcoma.

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Primary soft-tissue extranodal lymphomas arising from extremities are often classified under non-Hodgkin lymphomas (NHL) [1, 2]. Diffuse Large B-cell lymphoma (DLBCL) manifests itself as aggressive masses with rapid growth in the nodal or extranodal area. These massive lesions in extremity involvement can often be misinterpreted as tissue sarcomas [1–6]. The treatments and prognoses of sarcomas and lymphomas are completely different from each other. Here, we are reporting an unusual presentation of primary soft-tissue extranodal lymphoma, which is managed with maggot therapy to accelerate the treatment as an alternative approach.

CASE REPORT

A 30-year-old male patient who does not have a history of chronic disease was admitted to the emergency department with complaints of high fever, chills, and an open wound on his right thigh, and the patient had a cachectic appearance. The patient reported that his complaints started 3 months ago as a small palpable painless lump on his right thigh which started to grow slowly over time. He states that previously, he had an incisional biopsy from the right thigh in other clinic for diagnostic purposes, then he was diagnosed with high-grade pleomorphic sarcoma and a surgical excision decision was made by orthopedic surgeons in that clinic. The patient refused the surgery and neglected hospital follow-ups. On physical examination, at the anterolateral side of the right thigh, there was a 25 × 15 cm in size erythematous, warm, and a firm palpable mass. There was an 8 × 6 cm in diameter open central necrotic and infected area, and at the lateral side of it, there were multiple fistulas with purulent discharge (Fig. 1). White blood cell count

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Figure 1. Swollen, erythematous, warm skin, and a firm palpable mass at anterolateral side of the right thigh with open central necrosis and multiple fistulas.

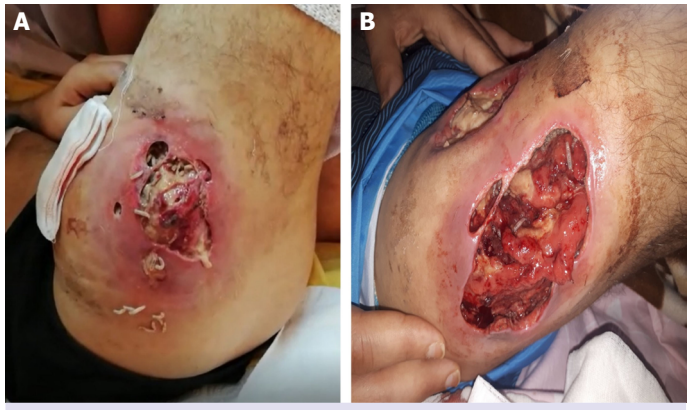

Figure 2. **(A)** Maggot therapy, **(B)** Maggot therapy.

was 14.900/μL and C-reactive protein was 236.4 mg/L; other laboratory values were within the normal limits. With these findings, the patient was admitted to the general surgery inpatient ward for treatment and further evaluation. Piperacillin-tazobactam and teicoplanin antibiotics were initiated and the patient underwent daily wound debridement and moist dressings. Because of the slow progress in wound healing, the maggot therapy was considered, for this purpose, Lucilia sericata larvae were used (Fig. 2A, B). Surprisingly, after the dramatic removal of necrotic tissue within few days, the maggot therapy was terminated. In the meantime, the pathologic re-examination of the paraffin blocks and slides was surprisingly revealed an Epstein–Barr virus (EBV)-positive DLBCL (Fig. 3A–D). To accelerate the wound treatment, vacuum-assisted closure (VAC) was applied

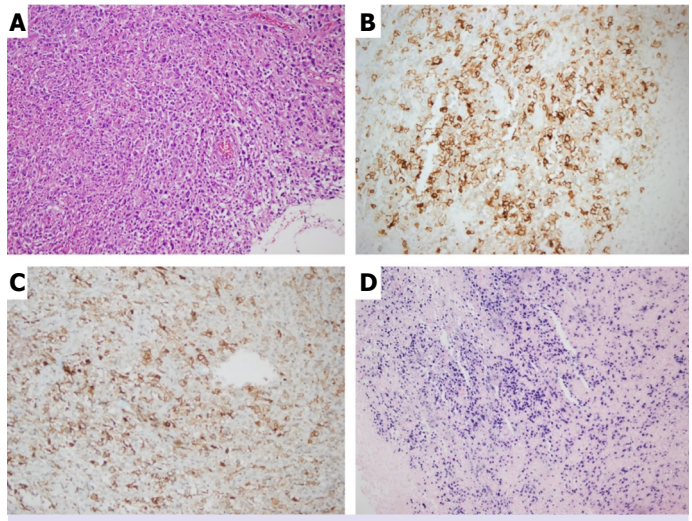

Figure 3. **(A)** Diffuse infiltration of large atypical mononuclear cells (H&E × 200), **(B)** Atypical mononuclear cells with CD20 expression (CD20 × 200), **(C)** Atypical mononuclear cells with CD30 expression (CD30 × 200), **(D)** Epstein–Barr virus-encoded small RNA (EBER) positivity demonstrated by *in situ* hybridization technique in atypical mononuclear cells (EBER × 100).

(Fig. 4). After approximately 3 weeks of treatment with VAC and methylprednisolone, the patient's symptoms improved dramatically and the wound on the right thigh almost completely healed. The patient had noticeable weight gain, was able to move on his feet, and was discharged after a hospital stay of 2 months (Fig. 5).

DISCUSSION

NHLs are usually present as multiple lymphadenopathies in the body, although they can originate from lymphoid tissues in the extranodal areas and the bone marrow [1, 2]. DLBCL accounts 30–40% of NHLs [7]. Soft-tissue lymphomas can be seen in all age groups, however, their frequency is higher over 50 years of life [3, 4]. Extranodal NHLs originating from soft tissue are very rare and account for 0.1% of all lymphomas [2, 4, 6]. The location of soft-tissue lymphomas can vary, such that the most affected parts are the thighs, followed by the trunk, upper limbs, and legs, respectively [1, 4, 5]. The exact etiology of the soft-tissue lymphomas is still unknown; however, it is believed that there are some predisposing factors causing soft-tissue lymphomas such as chronic inflammation, radiotherapy, and trauma [1]. Because of their rarity, NHLs originating from soft tissues can be easily confused with sarcomas [1–4, 6].

FIGURE 4. Vacuum-assisted closure applied on the wound.

FIGURE 5. Final condition of the right thigh after successfully wound management.

Primary infection with EBV is typically seen in childhood and its course is usually asymptomatic [7, 8]. However, in adolescents and young adults, the EBV can cause mononucleosis syndrome which presents with sore throat, enlarged lymph nodes, fever, and fatigue [7, 8]. After the infection by EBV, most of the patients become lifelong asymptomatic virus carriers without experiencing any significant impact on their health [7, 8]. Yet unfortunately, in some EBV carrier patients, solid and hematological malignancies may develop [7, 8]. EBV is usually encountered in immunocompromised patients such as post-transplant DLBCLs and HIV-associated DLBCLs. However, 10% of EBV-positive DLBCLs occur in immunocompetent patients [7]. EBV-positive DLBCL of the elderly has been included as a new provisional entity in the 2008 World Health Organization classification. Since it was limited only to patients older than 50 years old, it was attributed to immunosenescence associated with physiological aging. Yet, after it have been increasingly seen in younger patients, in 2016, the WHO redefined the definition by substituting the modifier elderly with not otherwise specified [9, 10].

The immunohistochemical profile of EBV-positive DLBCL is generally positive for the B-cell markers CD20, CD19, CD79a, and PAX-5, while CD10 and BCL6 are generally negative [10]. As in this present case, the observation of EBER positivity constitutes the most important and sensitive diagnostic parameter in the diagnosis [8, 10]. The standard combinations of chemotherapy and immunotherapy such as CHOP and R-CHOP are generally used in the treatment of EBV-positive DLBCLs [1, 2, 7, 10]. EBV-positive DLBCL cases have a lower response to combination chemotherapy than EBV-negative DLBCL cases. It is generally known that rituximab and anthracycline chemotherapy are associated with favorable outcomes in DLBCL cases. Whether the patient is old or young, the prognosis of EBV-positive DLBCL is worse than that of EBV-negative ones [4, 10]. Because the treatments and prognoses of sarcomas and lymphomas are completely different, the meticulous pathologic evaluation of the tissue samples is of utmost importance [1, 4]. The main treatment approach in sarcomas includes surgical excision, which is in the form of limb-sparing or limb amputation [1, 4, 6]. However, in our present case, we managed DLBCL with chemotherapy avoiding any unnecessary surgical intervention.

Conclusion

Our case presents maggot therapy as an alternative approach for managing complex and difficult open wounds. The necrotic debris in the patient's wound has almost gone and the formation of granulation tissue was achieved in a very short period of time without adversely affecting the comfort of the patient. Despite the concerns about infections caused by maggots, we recommend the use of maggot therapy in such difficult situations by experienced experts. This case not only highlights the underestimated and underutilized benefits of maggot therapy but it also underlines the importance of considering alternative diagnoses that may help to avoid radical surgical interventions.

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REFERENCES

1. O'Neill JK, Devaraj V, Silver DA, Sarsfield P, Stone CA. Extranodal lymphomas presenting as soft tissue sarcomas to a sarcoma service over a two-year period. J Plast Reconstr Aesthet Surg 2007;60:646–54. [CrossRef]
2. Derenzini E, Casadei B, Pellegrini C, Argnani L, Pileri S, Zinzani PL. Non-hodgkin lymphomas presenting as soft tissue masses: a single center experience and meta-analysis of the published series. Clin Lymphoma Myeloma Leuk 2013;13:258–65. [CrossRef]
3. Lanham GR, Weiss SW, Enzinger FM. Malignant lymphoma. A study of 75 cases presenting in soft tissue. Am J Surg Pathol 1989;13:1–10. [CrossRef]
4. Yang J, Zhang F, Fang H, Ye Z, Lin S, Han A. Clinicopathologic features of primary lymphoma in soft tissue. Leuk Lymphoma 2010;51:2039–46. [CrossRef]
5. Lim CY, Ong KO. Imaging of musculoskeletal lymphoma. Cancer Imaging 2013;13:448–57. [CrossRef]
6. Knowles B, Serpell JW. Extra-nodal lymphoma presenting as a mimic of soft-tissue sarcoma. ANZ J Surg 2003;73:26–30. [CrossRef]
7. Geng L, Wang X. Epstein-Barr Virus-associated lymphoproliferative disorders: experimental and clinical developments. Int J Clin Exp Med 2015;8:14656–71.
8. AbuSalah MAH, Gan SH, Al-Hatamleh MAI, Irekeola AA, Shueb RH, Yean Yean C. Recent advances in diagnostic approaches for Epstein-Barr Virus. Pathogens 2020;9:226. [CrossRef]
9. Swerdlow SH, Campo E, Pileri SA, Harris NL, Stein H, Siebert R, et al. The 2016 revision of the World Health Organization classification of lymphoid neoplasms. Blood 2016;127:2375–90. [CrossRef]
10. Chabay P. Advances in the pathogenesis of EBV-associated diffuse large B cell lymphoma. Cancers (Basel) 2021;13:2717. [CrossRef]