

by Kojima *et al.*⁸ For our case, we speculate that the use of methotrexate for rheumatoid arthritis is likely to have been involved in the onset of Hodgkin lymphoma.

Based on her medical history and the above reports, we speculate that the patient first developed rheumatoid arthritis followed by Hodgkin lymphoma, and cancer cells of urothelial carcinoma showed the distant metastasis to extra regional lymph node beyond regional lymph node, and incidentally existed in the same lymph nodes as Hodgkin lymphoma cells.

In our case, the onset of urothelial carcinoma resulted in the detection of malignant lymphoma. Treatment was difficult because of the nature of the pathology as a double cancer. In clinical practice, when lymphadenopathy occurs during the treatment of known malignant tumor, it tends to be considered to represent distant metastasis of the tumor under treatment. However, the possibility of double cancer as shown in our case cannot be ruled out. What was extremely distinctive in this patient was that different types of cancer, occurring as double cancer, were found in the same lymphoid tissue. This made the treatment difficult. In the diagnosis and treatment of cancer patients, when the clinical course is atypical, such as standard therapies proving ineffective or a pathology finding not able to be explained by a single tumor, examination of not only the local areas, but also the whole body should be considered for possible double cancer.

Conflict of interest

The authors declare no conflict of interest.

Approval of the research protocol by an institutional review board

The Ethics Review committee of Kochi medical school does not require ethical approval for reporting individual case.

Editorial Comment

Editorial Comment to A case of mixed tumor formed by metastasis of urothelial carcinoma and malignant lymphoma to the same lymph nodes

The current article by Kobayashi *et al.* reported a rare case of a mixed tumor in a para-aortic lymph node that comprised a metastatic urothelial carcinoma and Hodgkin lymphoma.¹ To our best knowledge, the coexisting metastases of urothelial carcinoma and Hodgkin lymphoma in the same lymph node have never been reported. This article has potential importance for daily clinical practice.

We read the article with great interest because of the extremely rare phenomenon of a mixed tumor derived from

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Informed consent

Verbal informed consent was obtained from the patient for their anonymized information to be published in this article.

Registry and the registration no. of the study/trial

Not applicable.



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different origins. Hypothetical mechanisms in the development of mixed tumors have been described.² One important hypothesis concerns changes in the surrounding microenvironment induced by a primary tumor that lead to increased risk of a secondary tumor. Some cancer cells have also been reported to produce chemokines that induce lymphocytic migration.³ In the reported case, the pathogenesis of the composite tumor consisting of carcinoma and lymphoma could be attributed to both hypothetical mechanisms, although it is also possible that the mixed tumor occurred coincidentally.

Methotrexate (MTX)-associated lymphoproliferative disorders (LPDs) can be considered in patients undergoing long-term MTX treatment, because these patients have a relatively high risk of lymphoma.⁴ The patient in this case had chronic

rheumatoid arthritis and had received MTX for more than 10 years. In cases of MTX-associated LPDs, withdrawal of MTX can occasionally lead to spontaneous complete remission, as mentioned in previous reports.⁵ Hodgkin lymphoma in the reported case could have been an MTX-associated LPD, and management of immunosuppressive treatment might have been an important clinical factor.

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Conflict of interest

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