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Autofluorescence imaging (AFI) is a novel technology which captures the fluorescence emitted from the gastrointestinal (GI) tract. AFI has been reported to improve the detection rate of epithelial neoplasms in the colon [1] and be useful for differential diagnosis of GI tract lesions of lymphoma [2]. We have recently experienced the case of lymphoma whose recurrent lesion was clearly detected by AFI at quite an early stage.

A 66-year-old man was diagnosed with mantle cell lymphoma at stage IV in 2004. Complete response (CR) was achieved after chemotherapy with rituximab, adriamycin, cyclophosphamide, vincristine, and prednisone. He however relapsed in 2007. At the time, lymphoma cells had infiltrated the sigmoid colon and rectum. He was treated with rituximab, fludarabine, cyclophosphamide, and mitoxantrone, and a second CR was achieved. In 2010, a colonoscopy was performed as a follow-up study. Although no abnormal findings were detected by conventional colonoscopy (Figure 1A), AFI detected a magenta colored area by diminishing the autofluorescence by 7 mm in size (Figure 1B, 1C) in the sigmoid colon. A biopsy revealed the infiltration of lymphoma cells that stained positive for cyclin D1 (Figure 1D). He was diagnosed of a second

relapse and treated with yttrium-90 ibunitumomab tiuxetan. AFI finding was apparently improved two months after treatment (Figure 2A) and no lymphoma cells were detected by biopsy (Figure 2B).

It is sometimes difficult to detect GI tract lymphoma lesions by conventional colonoscopy, especially at the early stages of involvement [3,4]. In the present case, however, AFI certainly detected the lesions and this led to a diagnosis of relapse of lymphoma at an early stage. AFI finding after treatment also predicted the disappearance of lymphoma cells. We suggest that AFI should be a powerful tool for detecting lymphoma lesions at an early stage and for monitoring lymphoma lesions during treatment.

References

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Figure legends

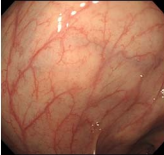
Figure 1.

(A) Conventional endoscopy showed no abnormal findings in the sigmoid colon. (B) Autofluorescence imaging (AFI) detected a minute magenta area. (C) Enlarged image of AFI. (D) Biopsy specimen obtained from the magenta area revealed the invasion of lymphoma cells stained positive for cyclin-D1.

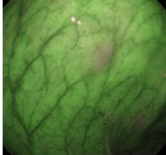
Figure 2.

(A) AFI detected no magenta lesion in this area after treatment. (B) Biopsy specimen obtained from the scar showed no invasion of lymphoma cells.

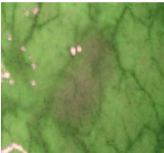
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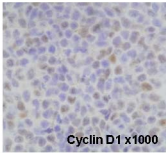
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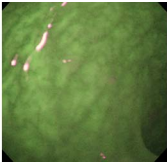
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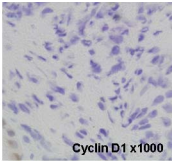
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A



B



Cyclin D1 x1000