

# 방사성요오드 치료 후 지연 발생된 침샘염의 $^{18}\text{F}$ -FDG PET/CT 소견

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## Abstract

### $^{18}\text{F}$ -FDG PET/CT Detects Late-onset Sialadenitis After Radioiodine Ablation Therapy

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Sialadenitis is a common complication arising from radioactive iodine therapy. F-18-fluoro-2-deoxyglucose positron emission tomography/computed tomography ( $^{18}\text{F}$ -FDGPET/CT) has been proposed to be useful in detecting not only a malignant lesion but also inflammatory changes. An  $^{18}\text{F}$ -FDG uptake pattern can vary according to inflammatory changes, and the present study reports on a case of late-onset sialadenitis 3 years after the treatment, showing a diffuse and intense  $^{18}\text{F}$ -FDGuptakeon  $^{18}\text{F}$ -FDGPET/CT. To the best of our knowledge, this is the first report on such an  $^{18}\text{F}$ -FDG pattern in late-onset sialadenitis after radioiodine therapy. (*J Med Life Sci* 2016;6(1):40-42)

**Key Words :**  $^{18}\text{F}$ -FDG,PETScan,Radioiodinetherapy,Sialadenitis

#### Introduction

Recent studies demonstrate that FDG PET/CT can find active infectious or inflammatory lesions. Acute sialadenitis is a usual complication due to radioiodine therapy, but late-onset sialadenitis is a rare condition. We report an uncommon case of FDG PET/CT detecting late-onset sialadenitis after radioiodine therapy.

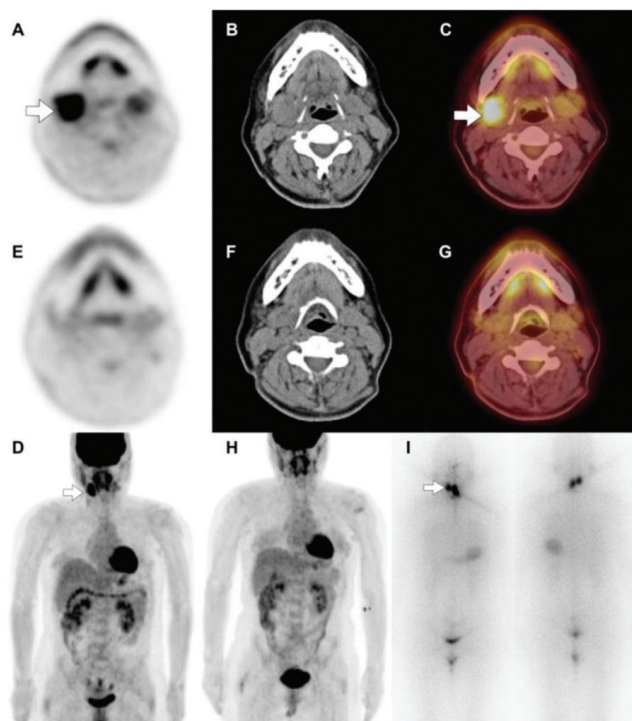
#### Case Report

A 45 year-old woman underwent total thyroidectomy due to papillary thyroid cancer in 2011. High-dose radioiodine ablation of 3.7 GBq (100 mCi) was performed 2 months after the operation. During hospitalization the patient had not complained of symptoms, suggesting an acute complication due to the therapy. For 3 years after discharge,

she had routine follow-up tests that included physical examination, serum thyroid function tests, ultrasonography and F-18-fluoro-2-deoxyglucose positron emission tomography/computed tomography ( $^{18}\text{F}$ -FDGPET/CT), and the tests results were found to be normal. Thereafter she complained of a mass-like lesion that grew around the right submandibular area. Sialadenitis was suspected upon physical examination, and a planned  $^{18}\text{F}$ -FDGPET/CT, as routine follow-up, was carried out after 6 days. The images revealed a diffuse and intense  $^{18}\text{F}$ -FDG uptake in right submandibular area on the transaxial and on the maximum intensity projection views(Fig. 1A-D, empty arrows; maximum standardized uptake value, 6.8). The present authors retrospectively reviewed imagery that had been captured 19 months prior, and found that those images contained a faint physiologic  $^{18}\text{F}$ -FDG uptake in both submandibular glands(Fig. 1E-H). The  $^{131}\text{I}$  scintigraphy taken on the second day after radioiodine therapy of 3.7 GBq was reviewed additionally. The images showed a focal  $^{131}\text{I}$  uptake in the thyroid bed area, suggesting the presence of a remnant of thyroid tissue. The other focal  $^{131}\text{I}$  uptake in the

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right submandibular area was seen with an asymmetric pattern(Fig. 1I, empty arrows).



**Figure 1.** <sup>18</sup>F-FDG PET/CT as a routine follow-up showed a diffuse and intense <sup>18</sup>F-FDG uptake in right submandibular area on the transaxial and on the maximum intensity projection views(A-D, empty arrows; maximum standardized uptake value, 6.8). <sup>18</sup>F-FDG PET/CT which had been conducted 19 months prior demonstrated that a faint physiologic <sup>18</sup>F-FDG uptake in both submandibular glands(E-H). The <sup>131</sup>I scintigraphy taken on the second day after radioiodine therapy of 3.7 GBq revealed a focal <sup>131</sup>I uptake in the thyroid bed area, suggesting the presence of a remnant of thyroid tissue. The other focal <sup>131</sup>I uptake in the right submandibular area was seen with an asymmetric pattern(I, empty arrows).

## Discussion

The present study showed that diffuse and intense <sup>18</sup>F-FDG uptake in right submandibular gland on <sup>18</sup>F-FDG PET/CT. Other salivary disease such as Warthin's tumor can also have the same pattern on <sup>18</sup>F-FDG PET/CT<sup>10</sup>. The present authors could exclude the presence of a salivary tumor because after conservative management, the

complaint was resolve. And therefore they presume that this case of sialadenitis occurred as a result of previous radioiodine treatment, considering there was a significant <sup>131</sup>I uptake on the salivary area during post-therapy scintigraphy even though a late-onset condition after 3 years was rare<sup>2,30</sup>. Furthermore, previous studies have shown that <sup>131</sup>I uptake in salivary glands is more likely to cause sialadenitis after radioiodine therapy<sup>4,5</sup>. Recent research revealed that <sup>18</sup>F-FDG PET/CT was useful for detecting not only malignant lesions but also infectious or inflammatory lesions<sup>6-9</sup>. This study showed the pattern of <sup>18</sup>F-FDG PET/CT of late-onset sialadenitis after radioiodine ablation therapy and demonstrated that <sup>18</sup>F-FDG PET/CT helps to diagnose inflammatory diseases, such as sialadenitis.

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