

## Radioiodine avid adenomatous colon polyp in a post-treatment whole body radioiodine scan

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(Received 23 June 2019, Revised 16 August 2019, Accepted 25 August 2019)

### ABSTRACT

A 47 year old female with papillary thyroid carcinoma was referred to our department for post-treatment whole body iodine scanning. The acquired images revealed a focal zone of intense radiotracer uptake in the right lower quadrant of the abdomen. SPECT/CT fused slices showed a focal zone of the radioiodine (<sup>131</sup>I) uptake in the right colon wall. Colonoscopy revealed a pedunculated polyp in the right colon. Eventually, a benign adenomatous polyp was confirmed by histopathologic assessment. To the extent of our knowledge, this is the first case of large bowel polyp demonstrating radioiodine uptake, reported in the literature.

**Key words:** Benign colon polyp; <sup>131</sup>I uptake; Whole body radioiodine scan

**Iran J Nucl Med 2020;28(1):57-59**

Published: January, 2020

<http://irjnm.tums.ac.ir>

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## INTRODUCTION

Whole body radioiodine scan is a valuable imaging modality in the disease management of patients with differentiated thyroid cancer. Nonspecific radioiodine uptake in many physiologic situations as well as benign or pathologic lesions has been previously reported in the literature.

## CASE PRESENTATION

A 47-year-old lady with papillary thyroid carcinoma, who underwent total thyroidectomy; presented with rising thyroglobulin levels during the disease follow up. The patient was treated with radioactive iodine ( $^{131}\text{I}$ ) and referred to our department for whole body radioiodine scan seven days later. The whole body images revealed a focal zone of intense radioiodine uptake in the right lower quadrant (RLQ) of the abdomen (Figure 1). We acquired lateral and delayed (24 hours after the whole body scan) static images for precise evaluation of the suspicious focus of radiotracer uptake (Figure 1). Since radio-iodinated thyroid hormones can be excreted into the intestine via the hepatobiliary system, we expected faint uptake in the bowel [1]; but in this case, radiotracer uptake persisted even 24 hours later with no evidence of movement of activity along the bowel lumen. Moreover, postsurgical thyroid remnant in the neck and diffuse bilateral breast radiotracer uptake were noticed.

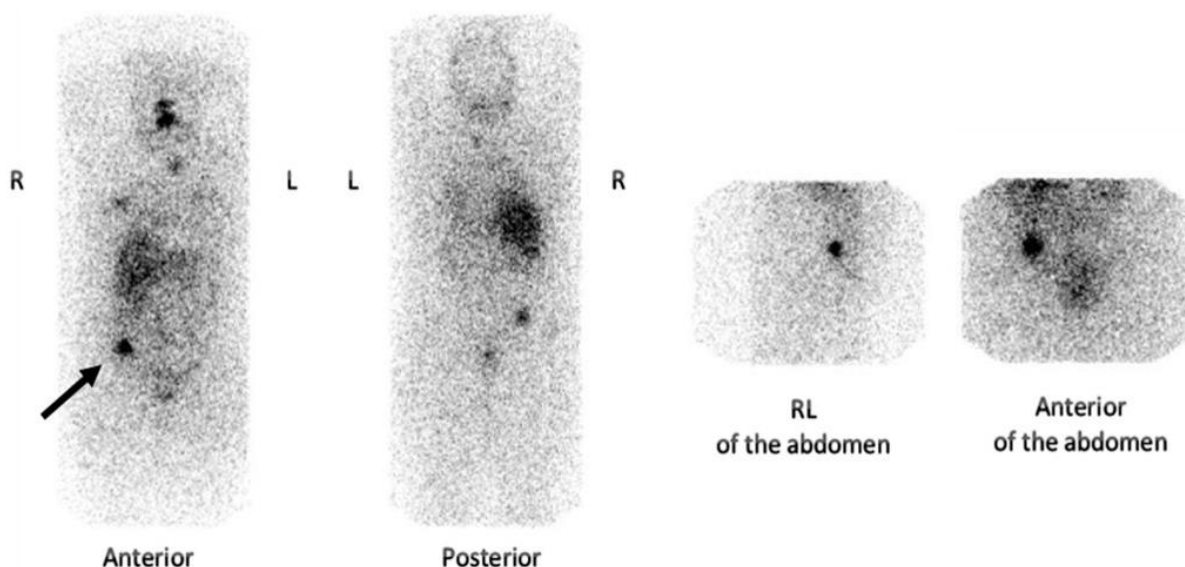
The SPECT/CT fused slices localized the focal  $^{131}\text{I}$  uptake in the right colon wall (Figure 2). Endoscopic evaluation of the large intestine detected a

pedunculated polyp in the right colon. Eventually, a benign adenomatous polyp was confirmed by histopathologic assessment.

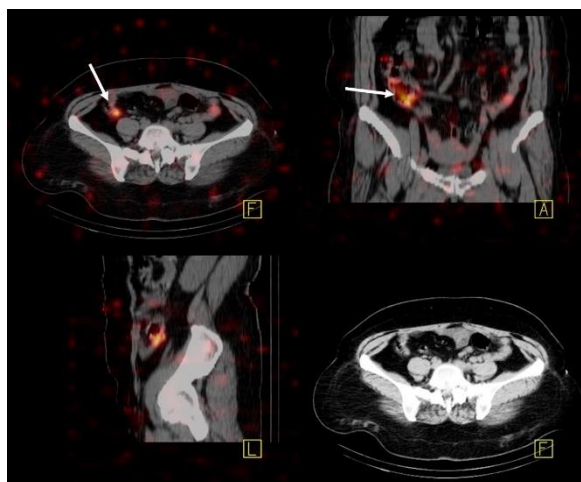
## DISCUSSION

In accordance with the literature, radioiodine avidity is not specific for thyroid tissue. The main explained mechanisms of non-thyroidal uptake are functional sodium-iodine symporters, radio-iodinated thyroid hormones metabolism, retention of radioiodine in the inflammation and retention of body fluid containing radioiodine [2, 3]. A considerable number of physiologic and pathologic  $^{131}\text{I}$  uptakes have been previously reported in the literature [1, 2, 4-7]. For example, physiologic uptake in the appendix, intestinal lumen, breast, surgical scar tissue, uptake in the inflammations, Meckel's diverticulum, cysts, benign tumors (uterine myoma, benign ovarian tumors, rectal wall teratoma and etc.), as well as malignant tumors (malignant ovarian tumors, peritoneal seeding and etc.) have been reported in the abdominopelvic region [1, 2, 4-9].

In our case, the observed bilateral and symmetric breast soft tissue radioiodine uptake in part could be explained with functional expression of the sodium-iodide symporter or moderately increased prolactin levels in the non-lactating breasts [2, 3]. Herein, we introduced a case of radioiodine avidity in a benign adenomatous polyp detected on post-ablation whole-body radioiodine scan. To the extent of our knowledge, this is the first case of colon polyp uptake of radioiodine reported in the literature.



**Fig 1.** Whole body radioiodine scan of the patient in the anterior, posterior, right lateral as well as anterior delayed views. The black arrow points to the mentioned abdominal radioiodine avid lesion.



**Fig 2.** Radioiodine SPECT/CT slices of the abdominal region. The white arrow points to the focal radioiodine avidity in the right colon wall.

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