

## Post Subtotal Thyroidectomy Acute Appendicitis, Elhassaheisa Teaching Hospital, Elhassaheisa, Sudan: 2022

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### Abstract

**Background:** Thyroid hormones have a significant role in modulating immune system.

**Methods:** A female of twenty-eight years old, presented with anterior neck swelling of five months duration, small in size, increases gradually over time. On examinations: looked well; afebrile. There was diffuse anterior neck swelling move with swallowing, no dilated veins or ulcers, free supra sternal notch. Swelling was soft smooth surface, diffuse, not attached to muscles, and no palpable lymph nodes. Diagnosed as simple diffused goiter and underwent subtotal thyroidectomy for cosmetic. On second day post operatively, she developed acute, central abdominal colicky pain, with no relieving or aggravating factors. On examination: looked unwell, afebrile, normal abdominal contour, move with respiration, free flanks, visible para umbilical swelling, tender and irreducible. Diagnosed as incarcerated para-umbilical hernia and repair was performed. On sixth day from first operation, she developed acute severe continuous right iliac fossa pain, not radiated with no relieving or aggravating factors. On examination: looked unwell, normal abdominal contour; move with respiration, free flanks, tenderness at right iliac fossa with positive rebound tenderness. Diagnosed as acute appendicitis and underwent appendectomy. Discharged in a good condition and came to refer clinic well and free of complains. Conclusion and recommendation: Incarceration of para-umbilical hernia could be due to lifting heavy weight in ward. Development of acute appendicitis may be due to flaring phase of thyroid hormones post thyroidectomy, exaggerating inflammatory response. Evaluation and monitoring of thyroid hormones post operatively, and provision of comforts facilities for such patients, was recommended.

**Keywords:** Subtotal Thyroidectomy; Modulation of Immune System; Multiple Operations; Sudan

### 1. Introduction

Thyroid hormones found to have a significant role in the modulation of immune system by the influence of T3 and T4 in cytokine maturation and release. Therefore, thyroid gland disorders can affect immunological functions. Hyperthyroidism associated with increased humoral and immune cell responses while hypothyroidism has the reverse effect. Moreover, levels of circulating thyroid hormones found to be associated with an immunological reactivity in healthy population, such as in physiological maintenance of lymphocyte subpopulations. Also, a positive association found between the thyroid hormones; the neutrophil and NK cell activities. T and B lymphocytes found to have the

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ability of synthesizing and releasing TSH which could affect healthy and abnormal thyroid cells, expressing the TSH receptor. This novel and unexpected non-pituitary source of TSH could be also decisive in affecting immune response during infections and chronic inflammation [1-4]. Innate and adaptive immune systems are affected by aging and therefore increase the risk of infections, cancer, and autoimmune disorders. In the other hand aging also associated with absolute or relative thyroid hormone deficiency which can result in aging-dependent immune dysregulation. [2]. The surgical emergencies have rare relations with thyroid diseases which could be life threatening conditions if occur [5]. Thyrotoxicosis and thyroid storm (TS) can resemble an acute surgical abdomen [6], also metastatic right iliac bone of follicular thyroid carcinoma can mimic acute appendicitis [7].

Multiple operations on the same patient" (MOSP) describe staggering number of operations within the space of only 2 years [8].

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## 2. Case report

Twenty eight years old female, a known case of para-umbilical hernia, presented complained of anterior neck swelling for 5 months, noticed by her, small in size increase gradually over time, not associated with pain or fever, not associated with any swelling in the body, no change in voice or strider, no S.O.B, no cough, has good appetite with no weight loss, no headache, no nervousness, no agitation, no palpitation, no chest pain, no diarrhea, no constipation, normal menstrual cycle, normal urine amount, color and frequency, no hemoptysis, no back pain, no yellowish discoloration of sclera, not hypertensive or diabetic. General Examinations: Look well AF, not pale or jaundice, PR:88 B/M, RR: 28 C/M, BP: 120/70 MM/HG. Local Examination: There was diffuse anterior neck swelling move with swallowing, no dilated veins, scars or ulcers, free supra sternal notch, trachea was central, no tenderness, no hotness, can go below the swelling, no palpable thrill, swelling was soft smooth surface, diffuse, 5\*5 cm in size, not attached to muscles, no palpable lymph nodes. Investigations: HB: 12.9 g/dl, TWBCs:  $7.9 \times 10^3$ , TSH: 3.43mUI/ml, T4:89.4ng/ml, T3:1.98ng/ml. Diagnosis and management: Patient diagnosed as Simple Diffused Goiter and underwent Subtotal Thyroidectomy for cosmetic reason with no intra- or post-operative complications. Day 2 post operative serum calcium was 8.7 mg/dl. On day 3 post operative, patient developed central abdominal pain after lifting of heavy weight within the ward, the pain was acute severe colicky in nature with no relieving or aggravating factors, no vomiting no diarrhea, normal urine amount color and frequency. General Examinations: Look unwell AF, not pale or jaundice. PR:96 B/M, RR: 22 C/M. Abdominal Examination: abdomen was of normal contour, move with respiration, free flanks, visible para umbilical swelling with no skin change over it, it was tender irreducible swelling. Investigations: HB: 12.9 g/dl, TWBCs:  $11.8 \times 10^3$ , Plt:  $386 \times 10^3$ . Patient diagnosed as Incarcerated Para-umbilical Hernia underwent Emergency Hernia Repair. Intra-operative findings: Through supra umbilical incision, hernia identified, sac contained viable omentum; reduced, hernia sac excised, anatomical repair was done by nylon 2, no intra-operative complications. On day 6 from the 1st operation patient developed acute severe continuous right iliac fossa pain not radiated with no relieving or aggravating factors associated with anorexia and nausea, no vomiting, no diarrhea, no cough, normal urine amount color and frequency. General Examinations: Look unwell AF, not pale or jaundice. PR:94 B/M, RR: 22 C/M. Abdominal Examination: abdomen was of normal contour; move with respiration, free flanks, there was tenderness at right iliac fossa with positive rebound tenderness, resonant on percussion with positive bowel sound. Patient diagnose as Acute Appendicitis underwent Emergency Open Appendectomy. Intra-operative findings: Through lanz incision, presenting part was small bowel, appendix found to be retrocecal in position, simply inflamed; hyperemic, adherent to ileum, adhesiolysis was done, mesoappendix secured and released, appendectomy was done, base was healthy, no intra-operative complications. Patient discharged on good condition and came to refer clinic well and free of complains.

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## 3. Discussion

Our case is twenty-eight years old female who underwent subtotal thyroidectomy, para- umbilical hernia repair and emergency open appendectomy within 7 days; this is not similar to any international studies [1-9], our case was euthyroid status unlike other studies [5,6], our case hasn't thyroid carcinoma unlike international findings [7]. The development of acute appendicitis could be explained by the flaring phase of thyroid hormones post thyroidectomy which may exaggerated the inflammatory response leading to this presentation, this is consistent with many international studies [1-4]. The explanation of the incarceration of her known para-umbilical hernia could be due the lifting of heavy weight within the ward as she tried to hold her sister from falling down, or it could be misdiagnosed for early features of acute appendicitis as the omentum found to be viable.

#### 4. Conclusion and recommendation

There is a possible association between acute appendicitis and thyroidectomy procedure; which may be due to flaring of thyroid hormone levels resulting in exaggeration of immune response. More attention, evaluation and monitoring of thyroid hormones post operatively, and provision of comforts facilities for such patients, was recommended.

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#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

There is no conflict of interest

##### *Statement of ethical approval*

Ethical approval was obtained from the concerned body.

##### *Statement of informed consent*

Informed consent was obtained from the patient

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