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TEST YOUR KNOWLEDGE

A masquerade in a symptomatic patient with heart failure

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Abstract

We describe the case of a 72-year-old housewife who presented to a primary care specialist clinic for reassessment following multiple hospitalisations for heart failure within the past 9 months. She presented with decreased effort tolerance and tiredness for the past 1 year. Her symptoms had remained the same despite current treatment. During the initial history-taking, she did not report any medical illnesses or surgeries. She had been well and had not undergone any screening for almost 30 years before the first hospitalisation for heart failure. There was neither cough, constipation, dyspepsia, abdominal pain, stool changes, haematuria, per vaginal bleeding nor hoarse voice. The physical examination findings were remarkable for slow movement and speech. Her skin was dry with a markedly increased serum lipid profile. Further investigation and management confirmed the suspected diagnosis.

Case summary

A 72-year-old housewife presented to a primary care specialist clinic for reassessment following multiple hospitalisations for heart failure (HF) within the past 9 months. Her symptoms started with decreased effort tolerance and tiredness for the past 1 year. Despite the current treatment, her symptoms had remained the same. During the initial history-taking, she did not report any medical illness or surgery. She had been well and had not undergone any screening for almost 30 years before the first hospitalisation for HF. There was neither cough, constipation, dyspepsia, abdominal pain, stool changes, haematuria, per vaginal bleeding nor hoarse voice. She was on aspirin 100 mg, atorvastatin 40 mg, amlodipine 10 mg and frusemide 40 mg daily, all prescribed as tablets before discharge.

Physical examination showed that her movement and speech were slow. She was visibly cold, needing a scarf and jacket. Her body mass index was 28 kg/m^2, which remained static. Her body temperature and blood pressure were normal with a pulse rate of 52 beats per minute. Her skin was dry. There was neither xanthelasma, tendon xanthomata nor pedal oedema. Auscultation of her heart and lungs yielded normal findings. Her fasting serum lipid profile 1 week ago was markedly increased, with a total cholesterol level of 9.2 mmol/L, triglyceride level of 3.6 mmol/L and low-density lipoprotein cholesterol level of 6.6 mmol/L despite high-intensity statin therapy. Other blood investigations, including the full blood count, renal profile, liver function and fasting sugar level, were within the normal ranges. A recent echocardiogram showed an ejection fraction of 53% with normal chamber size, wall thickness and valves.

Questions:

1. What is the most likely condition and its appropriate test?
2. What are the two most common aetiologies?
3. Outline the management plan.
4. What are the complications that may arise from inadequate treatment of this condition

Answers

1. The most likely condition is hypothyroidism. The thyroid function test (TFT) will confirm the condition of this patient.[1]

2. The two most common aetiologies of hypothyroidism include Hashimoto's disease and thyroid removal for Graves' disease.[1]

3. The patient should be started on

levothyroxine replacement. Levothyroxine may be started at a full supplementation dose of 1.6 mcg/kg in patients with a very high serum thyroid-stimulating hormone (TSH) level or at a lower dose of 25–50 mcg/day in patients with mild degrees of hypothyroidism, elderly patients or patients with comorbidities.[2] The serum TSH level and symptoms should be monitored within 4–8 weeks after initiation and dose adjustments. The treatment is usually lifelong.

4. The potential complications include harmful effects on the serum lipid profile and progression of cardiovascular disease.[2]

Case progress

Further examination of our case showed a necklace scar mimicking the neck line, which was previously concealed (**Figure 1**). The TFT showed a TSH level of 28.5 mIU/L (adult reference range: 0.55–4.78 mIU/L) and a free T4 level of 2.5 pmol/L (adult reference range: 11.5–22.7 pmol/L). Upon further history-taking, the patient underwent total thyroidectomy almost 40 years ago for possible Graves' disease and was followed up for approximately 5 years. However, she decided not to continue her follow-up, as she was feeling well. At the current visit, she was diagnosed with post-thyroidectomy hypothyroidism and started on levothyroxine. At the 6-month follow-up, her symptoms resolved with normalisation of thyroid function.

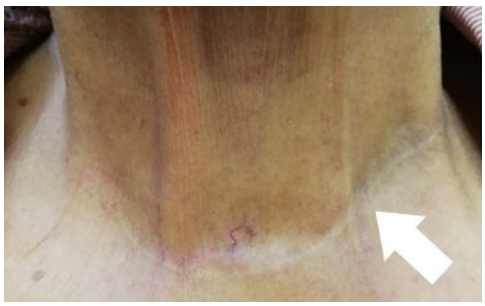

Figure 1. Fine necklace scar suggestive of a previous thyroidectomy.

Discussion

Hypothyroidism has been estimated to occur in up to 15% of women aged 60 years and above.[3] The classical symptoms, including tiredness or lethargy, constipation, physical or mental slowing, loss of hair and weight gain, are often mistakenly attributed to ageing and other diagnoses such as HF. In his textbook, John Murtagh described seven 'masquerades' or 'chameleons' as diagnoses that are commonly missed, which include thyroid disorder, especially hypothyroidism (**Box 1**).[3] Therefore, it is important to ask patients about their surgical history during history-taking and examine patients as a whole. The discovery of the thyroidectomy scar in this case clarified the occurrence of persistent symptoms in the patient with HF with preserved ejection fraction. The TFT is warranted for the diagnosis of hypothyroidism. The normal range for the TSH level in an elderly population, such as individuals over 65 years old, has been found to increase with age and vary by country.[1,4–6] Owing to this range of results, there are still no widely recognised and acceptable cut-off points for the TSH level among elderly populations in both local and international guidelines.

1. Depression
2. Diabetes mellitus
3. Drugs (iatrogenic or self-abuse – alcohol or narcotics)
4. Anaemia
5. Thyroid and other endocrine or metabolic disorders
6. Spinal dysfunction
7. Urinary tract infection

Box 1. Seven primary masquerades in primary care.

The management of hypothyroidism mainly consists of levothyroxine replacement with the aim of symptom resolution, serum TSH level normalisation and thyroid hormone level improvement while avoiding iatrogenic thyrotoxicosis.[1] However, levothyroxine absorption can be impaired by the administration of various medications or consumption of various foods or beverages such as coffee. Therefore, levothyroxine should be regularly taken either 1 hour before breakfast or at bedtime (≥3 hour after the last meal).[2] Since levothyroxine can also interact with other medications and supplements, it is recommended to take these medications and supplements separately from levothyroxine after 4 hours.[2] In managing hypothyroidism in older populations, the dose of levothyroxine needs to be carefully adjusted at regular intervals to avoid iatrogenic hyperthyroidism, as elderly patients are more susceptible to the ill effects of thyroid hormone excess than younger adults.

Adequate treatment of hypothyroidism is important, as it would reduce the risk

of complications such as dyslipidaemia, atherosclerotic cardiovascular disease and congestive HF and even potentially reverse cardiomyopathy.[2] Therefore, screening for masquerades, especially in primary care, might save patients' time and money by avoiding needless referrals and time spent in the medical system.[7] It is also imperative to educate patients regarding the need for long-term follow-up of the TFT results and levothyroxine treatment for hypothyroidism.

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Author contributions
JJ conceived the work, acquired the data and image and drafted the manuscript. MAMK and SNJ acquired the data, edited and revised the manuscript. All authors have read and approved the final version of the manuscript.

Conflicts of interest
None.

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How does this paper make a difference in general practice?

- Many patients are referred to primary care clinics to continue their care after being discharged from hospitals. Yet, these patients may still have continued and puzzling symptoms that are often a clinical quandary.
- It is important to consider hypothyroidism as a differential diagnosis, as it may mimic many symptoms from various body systems.
- Timely diagnosis and management of hypothyroidism are important to reduce the risks of complications.

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