



Seroma as an Unusual Complication Post Total Thyroidectomy Managed with a Special Technique: Case Report

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Abstract

Abstract 1

Objective: To identify a proper technique for the management of seroma formation following thyroidectomy.

Setting: Tertiary Care Hospital in the Middle Eastern region.

Participant: A 47 year old Saudi female with seroma formation following thyroidectomy.

Interventions: In this case the conventional method of managing seroma post thyroidectomy with drain placement was not effective. The drain output was markedly high for few days. So, this was managed through clamping the drain, thus creating a closed system, which generated pressure on the tissue around the seroma, thus shifted the fluid intracellular from the extracellular space.

Results: The swelling improved dramatically and the drain was removed.

Conclusion: We may consider our way of management in case of conventional treatment failure. We think that this management technique is better to be applied for more similar cases to confirm its efficacy and safety.

Abstract 2

Introduction: The definition of seroma has not been consistent in the literature; however, most widely it is defined as a collection of clear fluid composed of exudates that is surrounded by a fibrous capsule. Seroma mostly formed in the setting of recent surgery or trauma. It has been frequently associated with mastectomy, laparoscopic inguinal hernia repair, axillary lymphadenectomy and abdominoplasty. However, it is uncommonly reported post thyroidectomy. The most effective way of managing seroma in the literature is serial percutaneous aspiration.

Case study: Here we present an unusual case of seroma formation following thyroidectomy that was managed successfully. In our case, the conventional method of managing seroma post thyroidectomy with drain placement was not effective. The drain output was markedly high for few days. So, this was managed through clamping the drain, thus creating a closed system, which generated pressure on the tissue around the seroma, thus shifted the fluid intracellular from the extracellular space. This was applied for a hospitalized patient who was monitored closely.

Conclusion: We may consider our way of management in case of conventional treatment failure. We think that this management technique is better to be applied for more similar cases to confirm its efficacy and safety.

Keywords: Seroma; Total thyroidectomy; VTE

Introduction

Variable definitions of seroma have been reported in the literature based on clinical or ultrasonographic findings. Some studies define seroma as fluid collection of more than 5 ml to 20 ml that is obtained by puncture and aspiration [1]. While other studies consider seroma only when multiple aspirations are required or in cases where new drain insertion was performed [2]. In general, seroma is stated when it is symptomatic, palpable and requires one needle aspiration or more [3]. Seroma mostly formed in the setting of recent surgery or trauma [4]. Seroma formation has been

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frequently associated with mastectomy, laparoscopic inguinal hernia repair, axillary lymphadenectomy and abdominoplasty. However, it is uncommonly reported post thyroidectomy with an incidence of 1.3% to 7% [5]. The underlying cause and pathophysiology of seroma remains unclear. Different risk factors have been reported to increase the incidence of seroma post thyroidectomy including older age, greater body mass index and decreased ionized calcium level [6]. In majority of cases, seromas does not need any intervention due to its spontaneous resolution. Since seroma is not commonly seen as a complication of thyroidectomy, few studies were written about the specific management of seroma post thyroidectomy. Most studies discussed the management of seroma after breast surgery, which mainly focused on prevention [7]. We present an uncommon case of seroma formation following thyroidectomy that was managed successfully.

Case Study

A 47 year old Saudi female known case of diabetes mellitus, hypertension, and morbid obesity, presented in June, 2017 to her regular follow up at the endocrinology outpatient clinic. The patient had a chronic stable neck nodule which recently increased in size and became painful for the last three months. The patient's past medical history include papillary thyroid carcinoma for which she underwent total thyroidectomy and right neck dissection in 2007, followed by radioactive iodine ablation. Histopathological report revealed multiple papillary thyroid carcinoma nodules, involving the right upper, middle and lower poles. It measured about 1.5 cm, with extra capsular extension. About six of thirty right internal jugular lymph nodes were positive for metastasis. Laboratory investigations of her current symptomatic nodule revealed Thyroglobulin level of <0.1 ug/L, FT4 of 21.5 pmol/L and TSH of 0.99 mul/L. Ultrasound showed clear thyroid beds, with right supraclavicular simple cystic lesion measuring 3.2 cm × 2.4 cm × 3.3 cm. Fine needle aspiration of the cystic lesion revealed recurrent metastatic papillary thyroid carcinoma. Upon this finding, the patient was booked for right cervical lymph node dissection. Intraoperatively, a 3.4 cm hard, necrotic lymph node was identified at level 3 and 4 of the internal jugular vein. It was dissected successfully and sent for histopathology. Pathological study of the specimen showed a cyst measuring 3.5 cm × 3.0 cm × 1.5 cm filled with organizing fibrin clot. The wall was densely fibrous with focal calcification and rare smooth muscle cells. The findings were consistent with organizing seroma. A drain was inserted and the patient went to the recovery room with no complications. Her post operative stay went smoothly. The patient was discharged five days after her operation with the drain in stable condition. Few days after her surgery, the patient presented to the emergency department with progressive, painful neck swelling following accidental removal of the drain. The swelling was associated with dysphagia and dyspnea. There was no history of fever, cough, hoarseness or numbness. On physical examination, the patient was mildly Tachypnea with a respiratory rate of 22 breaths/min, heart rate of 85 beats/min, oxygen saturation 98% and blood pressure was within normal range. The anterior aspect of her neck was swollen, tender, without erythema, discharges or warmth. Blood workup including CBC, platelets, septic screen, Venous Thrombo Embolism (VTE) screening, and lipid profile was all normal. She was admitted and had a CT scan of the neck which showed anterior lower neck and right supraclavicular fluid collection that measures 10 cm × 5 cm × 5 cm (transverse, anteroposterior and cranio caudal dimensions, respectively), and patent surrounding vascular structures. Ultrasound guided drainage was performed,

250 cc of serous fluid was aspirated, and a drain was inserted. The fluid had normal levels of chylomicrons, cholesterol, triglycerides and proteins; excluding lymphatic leakage. The patient condition did not improve with the simple, conventional drain insertion. The output from the drain was high, range of 60 to 395 ml/day for two weeks. Since conventional method failed, we thought of managing it by drain clamping. The patient was in hospital and observed for any compressive symptoms which did not occur. Within a period of one week only of clamping the drain, the swelling improved dramatically and the drain was removed. The patient was discharged home in a stable condition. She was seen in the clinic one week later with a minimal swelling and good health.

Discussion

The definition of seroma has not been consistent in the literature; however, most widely it is defined as a collection of clear fluid composed of exudates that is surrounded by a fibrous capsule [4]. Several mechanisms have been proposed when it comes to the underlying pathophysiology of seroma formation. Most commonly, injury to blood vessel, lymphatics upon dissection and the formation of large dead space [3]. Numerous risk factors associated with seroma formation were described in the literature. Such factors could be patient related or surgery related. Old age, female gender, high BMI, hypertension, low serum calcium levels all promote seroma formation [8]. The type of thyroidectomy can influence seroma formation as well. Conventional thyroidectomy was linked to higher incidence of seroma compared to endoscopic approach. On the other hand, using electrical vessel sealing system was associated with lower incidence of seroma due to the low surgery site extension [9,10]. Thus, our patient being obese, diabetic and female; was at a higher risk for seroma formation. The diagnosis of seroma can be made through physical examination and ultrasound. CT scan and MRI can be used for more anatomical details. The most feared complications of seroma following thyroidectomy particularly are airway compromise, disrupted wound healing, abscess formation and sepsis. The most effective way of managing seroma is serial percutaneous aspiration [8]. Nonetheless, the best strategy to seroma management is prevention. Placement of subcutaneous drain is one of the most commonly used procedures to prevent seroma formation. However, some studies report increase risk of infection and hospital stay in patient with drains. Further studies are needed to establish the efficacy of the use of drain. The current suggestion is to use drains for patients who are critically unwell or in cases where the dead space is very large [3,11]. The conventional method of managing seroma with drain placement was not effective in our case. The drain output was markedly high during her post-operative period ranging between 60 to 395 ml/day. This was managed successfully through clamping the drain while observing the patient in hospital. The idea stem from creating a closed system, which generates pressure on the tissue around the seroma, thus shifting the fluid intra cellular from the extracellular space [12,13]. This was applied for a hospitalized patient who was monitored closely.

Strengths and Limitations

- Drain clamp is an easy, applicable and cheap method to manage post thyroidectomy seroma if conventional treatment failed as what we did for our patient.
- It fastens patient's management in comparison with multiple aspirations and observation.

- It does not require special skills or instruments to perform it.
- The management technique was applied for one case in our center; further applications are needed to confirm its safety and efficacy.
- It requires hospitalization and close observation which might be costly and can increase the risk of nosocomial infection.

Conclusion

Seroma is uncommonly present following thyroidectomy. Although the exact etiology is not known yet, various clinical, preoperative, and postoperative factors influence seroma formation. Physicians should be aware of such factors and aim in preventing them when possible. We may consider our way of management in case of conventional treatment failure. We think that this management technique is suggested to be applied for more similar cases to confirm its efficacy and safety.

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