Arterial Thrombosis Following Total Thyroidectomy

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ABSTRACT

Introduction: Surgery in areas that have many arteries, such as the chest and larynx, can lead to arterial thrombosis; Since arterial thrombosis following thyroidectomy may lead to the death of the patient, we decided to conduct the present study with the aim of arterial thrombosis following total thyroidectomy. Material and Methods: This cross-sectional descriptive study was performed during 2020 with the participation of all patients who were candidates for total thyroidectomy. Patients were evaluated for symptoms of arterial thrombosis after surgery (for 50 hours) and the prevalence of arterial thrombosis was confirmed by clinical signs and ultrasound. Results: Five patients with symptoms of arterial thrombosis were observed who initially had symptoms such as pain and swelling in the operated area, redness in the operated area and swelling in the face; Meanwhile, cyanosis and local discoloration in the neck area were also observed in all patients. Ultrasound was performed for all patients and the results of ultrasound showed that all 5 patients had arterial thrombosis. All patients were diagnosed within the second 24 hours. Conclusion: Arterial thrombosis after thyroidectomy is a rare complication characterized by pain and inflammation; Total thyroidectomy due to the nature of surgery can increase the risk of arterial thrombosis.

Keywords: Prevalence, Arterial thrombosis, Thyroidectomy, Risk Factor
Introduction

Arterial thrombosis occurs when a blood clot forms in an artery. Arteries are blood vessels that carry blood from the heart to the organs of the body [1-3]. Some blood clots form in the arteries, often in the legs or pelvis [4]. When this happens, it is known as deep vein thrombosis. Arterial thrombosis is similar to deep vein thrombosis, but it affects the arteries, not the veins. Arteries are usually larger and carry more blood [5-7]. Arterial thrombosis can cause life-threatening events, such as a heart attack or stroke [8-10]. The symptoms of arterial thrombosis depend on the location of the blood clot. Some of the symptoms of thrombosis may include the following: pain in one leg, one leg or arm is swollen, chest pain, numbness in one side of the body, weakness in one side of the body, mental disorders [11-13]. However, many people will not experience any symptoms of blood clots in their arteries until they cause more complications by blocking blood flow to parts of the body [14-16]. Anyone can get arterial thrombosis, but some people are more at risk [17]. The most likely cause of arterial thrombosis is vascular damage due to atherosclerosis. Atherosclerosis occurs when a person builds up plaque in the walls of their arteries [18-20]. The arteries then begin to narrow and harden, which increases a person’s risk of developing arterial thrombosis [21-23]. Surgery in areas that have many arteries, such as the chest and larynx, can lead to arterial thrombosis; Since arterial thrombosis following thyroidectomy may lead to the death of the patient, we decided to conduct the present study with the aim of arterial thrombosis following total thyroidectomy [24-26].

Material and Methods

This is a descriptive study that was conducted during the year 2020 in the hospitals of Tabriz University of Medical Sciences. The total number of cases that were operated for Total thyroidectomy in the hospitals of Tabriz University of Medical Sciences were included in this study in an accessible manner and were evaluated. Inclusion criteria included age over 18 years, candidate for total thyroidectomy, stability of the patient during surgery, consent to participate in the study, and exclusion criteria included use of anticoagulants, extensive arterial injuries during surgery, incision Extensive surgeries were a history of previous laryngeal surgery over the past three months, a history of arterial thrombosis, and a history of previous deep vein thrombosis. Patients were included in this study by available sampling method. Information such as age,
gender, body mass index, duration of anesthesia, duration of surgery, history of diseases such as hypertension and diabetes, smoking and alcohol consumption were recorded for each patient; After the surgery and transfer of the patient to the relevant ward, the bleeding status of the patients was assessed; Also, the status of subcutaneous hematoma formation was physically examined in the first six hours (once every hour) and the next 48 hours (once every six hours). If there was a suspicion of hematoma as well as active bleeding, ultrasound was performed from the surgical site and if the results of ultrasound showed arterial thrombosis, the patient underwent medication (anticoagulant). If the severity of thrombosis is high and surgery is required, the patient was transferred to the operating room and underwent surgery. The collected data were entered into the SSSS statistical software (version 22). Quantitative data were analyzed by descriptive statistics and qualitative data were evaluated by non-parametric tests. This study was carried out with the approval of the ethics committee of Tabriz University of Medical Sciences (NO: IR.TBZMED.REC.1398.009) and obtaining informed consent from all participants.

Results

In this study, 100 patients were evaluated, of which 55 patients were female and the rest were male. The age of participants was 48.11±5.25; Of all participants in the study, 32 smoked, 12 reported chronic alcohol use; Hypertension was observed in 61 patients and diabetes mellitus in 38 patients. Five patients with symptoms of arterial thrombosis were observed who initially had symptoms such as pain and swelling in the operated area, redness in the operated area and swelling in the face; Meanwhile, cyanosis and local discoloration in the neck area were also observed in all patients. Ultrasound was performed for all patients and the results of ultrasound showed that all 5 patients had arterial thrombosis. All patients were diagnosed within the second 24 hours.

The most common symptom in all patients was unbearable pain at the surgical incision; Anticoagulant therapy was started for all patients. The duration of response to drug therapy for all patients was less than 7 days; The main role of arterial thrombosis in all patients was smoking, high body mass index and receiving chemotherapy drugs.
Discussion

Arterial thromboembolism is the formation of a blood clot in an artery (thrombosis) that may extend to distant organs and large or small arteries anywhere in the body, especially the arteries of the neck or the arteries to the brain, intestines, Upper limbs or kidneys become involved [27-29]. Depending on the location of the arterial embolism, symptoms such as abdominal pain, nausea, vomiting and shock, temporary blindness, difficulty speaking, relative paralysis, hearing loss, headache and dizziness, pain in the upper limb or Stem after exercise (subsides with rest), weakness, numbness, tingling sensation, and burning sensation and weakness or lack of pulse after the obstruction may occur [30-32]. If thrombosis occurs acutely in the main arteries of the arteries of the limbs, there is a risk of ischemia and gangrene of the limb, followed by loss of limb function or organ failure [33-35]. Blood clots can form in a person, damage the uniform lining of the heart or blood vessels, form and dislodge small, large parts as the clot grows and travel through the bloodstream to the brain, abdomen, limbs, or other parts [36-38]. Among the diseases that can damage the vascular lining are atherosclerosis (arteriosclerosis), damage to the blood vessels as a result of an accident or surgery, valvular heart disease, heat stroke and atrial fibrillation (irregular heartbeat) [3]. Age over 60, smoking, high blood pressure, diabetes mellitus, and a history of transient ischemic attacks are exacerbations of arterial embolism [40-42].

Conclusion

Arterial thrombosis after thyroidectomy is a rare complication characterized by pain and inflammation; Total thyroidectomy due to the nature of surgery can increase the risk of arterial thrombosis. Diagnosis and treatment of arterial embolism include arteriography, early treatment necessary, and usually requiring surgery, surgery to repair or replace a damaged blood vessel, or to remove a clot by balloon or vascular bypass; Reduce the risk of developing arterial embolism and vasodilators for vasodilation and minimally invasive interventions

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