



SPLenic INFARCTION FOLLOWING THYROIDECTOMY: AN UNUSUAL CASE IN THE EMERGENCY DEPARTMENT

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Abstract: Splenic infarction is a rare diagnosis in the emergency department and can easily mimic other causes of acute abdomen. Cardioembolic and hematological disorders, inflammatory (eg pancreatitis) and infectious (eg sepsis) conditions, postoperative conditions, malignant neoplasms and atherosclerosis are some of the risk factors. Papillary thyroid carcinoma is the most common histologic type of differentiated thyroid malignancy and is known as the least aggressive thyroid carcinoma. A 46-year-old male patient was admitted to the emergency department with the complaint of abdominal pain for five day. When the patient's anamnesis was deepened, it was learned that the patient had been operated on 5 days before the papillary thyroid cancer, the abdominal pain started the day after the surgery, and the pain showed an increasing and decreasing course. Contrast-enhanced abdominal CT performed on the patient revealed perfusion defects in the posterior and lateral parts of the spleen. The diagnosis of splenic infarction should also be kept in mind in patients presenting to the emergency department with left upper quadrant pain, especially in patients who have recently undergone a surgical operation, have a previous history of thrombotic and vascular disease, and have any malignancy.

Keywords: Splenic infarction, Thyroidectomy, Emergency department

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1. Introduction

Splenic infarction occurs when blood flow to the spleen is reduced or completely interrupted for various reasons (Yılmaz, 2019). Splenic infarction is a rare diagnosis in the emergency department and can easily mimic other causes of acute abdomen. The most common symptom in patients is left upper abdominal pain, and other symptoms are nausea, vomiting, constipation and fever (Antopolsky et al., 2009). Cardioembolic and hematological disorders, inflammatory (eg pancreatitis) and infectious (eg sepsis) conditions, postoperative conditions, malignant neoplasms and atherosclerosis are some of the risk factors (Brett et al., 2020).

Papillary thyroid carcinoma is the most common histologic type of differentiated thyroid malignancy and is known as the least aggressive thyroid carcinoma. Total thyroidectomy or isthmusectomy is performed in the treatment of papillary thyroid carcinoma (Vasileiadis et al., 2018).

There are cases of splenic infarction seen following some abdominal and thoracic surgical procedures in the literature (Soriano-Giménez et al., 2017; Oyama et al., 2021). Here, we present a patient who was surprisingly diagnosed with splenic infarction in a patient who had recently undergone thyroidectomy and presented to the emergency department with the complaint of abdominal pain. No case of splenic infarction seen after thyroidectomy was found in the literature.

2. Case Report

A 46-year-old male patient was admitted to the emergency department with the complaint of abdominal pain for five day. He had a history of hypertension, type 2 diabetes, peripheral vascular disease (in both lower extremities), thyroidectomy. When the patient's anamnesis was deepened, it was learned that the patient had been operated on 5 days before the papillary thyroid cancer, the abdominal pain started the day after the surgery, and the pain showed an increasing and decreasing course. Pain was localized in the left upper quadrant and did not radiate from any other location. In addition, the patient had loss of appetite. The patient did not complain of constipation, diarrhea and fever. The medications that the patient used regularly were levothyroxine sodium (100 mcg), acetylsalicylic acid (100 mg), clopidogrel (75 mg) and perindopril arginine (5 mg).

At the initial evaluation, blood pressure was 114/65 mm Hg, heart rate was 108 beats per minute, temperature was 36.3°C, respiratory rate was 18 breaths per minute, and oxygen saturation was 97%. There was pain in the left upper quadrant of the abdomen without defense and rebound tenderness, horizontal surgical scar in the anterior cervical region, and the rest of the physical examination was unremarkable. His blood tests were notable for white cell count of $15.8 \times 10^3/\text{mm}^3$, elevated lactate dehydrogenase (433 U/L, normal range 70-248



U/L) and high levels for C-reactive protein (104.3 mg/L, normal range less than 5 mg/L). Abdominal ultrasonography was performed first, but no significant finding was detected. Then the patient underwent contrast-enhanced abdominal CT. Perfusion defects appeared in the posterior and lateral part of the spleen, which was reported as infarction by the radiologist

(Figure 1). The patient was transferred to the upper center because our hospital is a secondary level hospital. The patient's antiplatelet medication was discontinued and low molecular weight heparin (LMWH) therapy was started. The patient was hospitalized for 2 days here. The patient, whose complaints regressed and laboratory values were normalized, was discharged.



Figure 1. Contrast enhanced-CT scan on admission to the emergency department: Yellow arrow indicates splenic infarct in our patient.

3. Discussion

Infarction of the spleen is a rare condition that causes abdominal pain. Splenic infarction occurs with parenchymal necrosis due to complete or partial occlusion of the splenic artery or vein (Ozakin et al., 2015). The occlusion is usually caused by soft or septic embolism as well as venous blockage of abnormal cells (Chapman et al., 2017). This condition is usually caused by underlying diseases. There could be several reasons for this in our case. Venous and arterial thromboembolism are common complications of cancer (Pfrepper, 2020). There is a close relationship between the paraneoplastic syndromes seen in some cancer types and thrombotic processes (Saraiva et al., 2020). One study found that patients with cancer had an overall four to six-fold increased risk of thrombosis compared to patients without cancer (Heit et al., 2000). We know that our patient had recently been operated on for papillary thyroid cancer, which is a risk factor for splenic infarction.

Solid malignancies and surgery are common risk factors for splenic vein thrombosis (Pfrepper, 2020). Postoperative immobilization of our patient may have

caused thrombosis leading to splenic infarction. Thrombosis risk in patients undergoing non-orthopedic surgery is determined by methods such as the extent of the surgical procedure, the assessment of major bleeding risk, and the Caprini risk score (Pai and Douketis, 2019). Our patient also has preexisting peripheral vascular disease. In our opinion, the cause of this vascular disease is the paraneoplastic syndrome that developed due to the patient's solid cancer. In a retrospective analysis of patients with splenic infarction, more than half of the patients had more than 12000 white blood cells (WBC) and increased lactate dehydrogenase (LDH) levels; most of the patients were over 40 years old. (Chapman et al., 2021). In this context, our case is compatible with the literature.

Contrast-enhanced CT scan is the best method for diagnosing splenic infarction. It also enables the detection of other acute abdominal pathologies. Abdominal ultrasonography (USG) has low specificity and high false-negativity for splenic infarction (Caremani et al., 2013). In our patient, splenic infarction was missed by USG, but it was later detected in contrast-enhanced CT.

There is a case of splenic infarction with thyroid papillary cancer previously reported in the literature (Saraiva et al., 2020). However, unlike this case, our patient comes to the emergency department in the postoperative period and receives a very rare diagnosis in the emergency department. In this respect, our case makes a contribution to the literature.

4. Conclusion

The diagnosis of splenic infarction should also be kept in mind in patients presenting to the emergency department with left upper quadrant pain, especially in patients who have recently undergone a surgical operation, have a previous history of thrombotic and vascular disease, and have any malignancy. Contrast-enhanced abdominal CT should be preferred among the diagnostic imaging tools of these patients.

Author Contributions

All task made by N.V. (100%); Concept, Design, Supervision, Data collection and/or processing, Data analysis and/or interpretation, Literature search, Writing, Critical review, Submission and revision. The author reviewed and approved final version of the manuscript.

Conflict of Interest

The author declared that there is no conflict of interest.

Ethical Approval/Informed Consent

Written an informed consent form was obtained from the patients for the case presentation and necessary information was given to the family.

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