Ulutas Med J 2021;7(2):137-140
DOI: 10.5455/umj.20210418105101

CASE REPORT OPEN ACCESS

Acute Nonsuppurative Sialadenitis After Contrast Material Administration For Computed Tomography Angiography

Büşra Şeker[1] · **Gökhan Yılmaz**[2] · **Mehmet Haydar Atalar**[3] · **Nisa Başpınar**[3]
[1]*Outpatient Clinic of Radiology, Cizre State Hospital, Health Ministry, Cizre, Şırnak, Turkey*
[2]*Outpatient Clinic of Radiology, Bitlis State Hospital, Health Ministry, Bitlis, Turkey*
[3]*Department of Radiology, Cumhuriyet University, Faculty of Medicine, Sivas, Turkey*

Introduction: By the use of iodine-containing intravenous contrast agents, sialadenitis rarely occurs with a sudden expansion of the salivary glands. Its pathogenesis is uncertain, but it appears to be the result of an idiosyncratic reaction or accumulation of iodine in the ductal system of the salivary gland. In this article, we aimed to present a case of contrast-induced sialadenitis after an iodine-containing contrast agent.
Case Presentation: A sixty-six-year-old male with a history of the abdominal aortic aneurysm was referred for CT angiography. The patient had referred to emergency service with mildly tenderness, pain, and swelling in the bilateral submandibular region. Physical examination also revealed mildly enlarged bilateral submandibular glands, with no fever. There was no erythema, ulcer, and no symptom in both oral and oropharyngeal mucosa. The US performed bilateral diffuse homogeneous expansion of the submandibular salivary glands. In the light of clinical and radiological findings, contrast-induced non-suppurative sialadenitis was considered.
Conclusion: Non-suppurative sialadenitis is a rare adverse effect of contrast material administration, which true incidence is unknown. Chronic kidney failure and repeated dose of contrast material are risk factors for this complication. We think that this adverse effect deserves more attention, and follow-up, and prevention for recurrence because its long-term importance is unknown yet.

Keywords: Nonsuppurative sialadenitis, contrast material. computed tomography, angiography

Introduction

Owing to the use of iodine-containing intravenous contrast agents, sialadenitis rarely occurs with a sudden expansion of the salivary glands. Contrast-induced sialadenitis (iodide mumps) was first described in 1956. The actual incidence is unknown, and fifty-two cases have been reported until 2015. Its pathogenesis is uncertain, but it appears to be the result of an idiosyncratic reaction or accumulation of iodine in the ductal system of the salivary gland (1, 2). In this article, we aimed to present a case of contrast-induced sialadenitis after an iodine-containing contrast agent.

Corresponding Author: Mehmet Haydar Atalar; Department of Radiology, Cumhuriyet University Faculty of Medicine, Sivas, Turkey
E-mail: mhatalar@gmail.com
ORCID: 0000-0003-3076-8072
Received: Apr 26, 2021 **Accepted**: May 25, 2021
Published: June 26, 2021

Case Presentation

A sixty-six-year-old male with a history of the abdominal aortic aneurysm was referred for Computed Tomography (CT) angiography. The patient had long-term arterial hypertension and chronic renal failure (stage 2 chronic kidney disease). Before this administration, he had a contrast-enhancement CT evaluation twice within 5 years. He had no history of allergy before. CT angiography of thoracic and abdominal aorta was performed by 90cc Iopromide (Ultravist300,ScheringAG, Germany), a non-ionic low-osmolar contrast material containing about 300mg iodine/ml. No adverse effects were experienced during administration and the stay at the radiology department. Around 8-10 hours after administration, the patient had referred to emergency service with mildly tenderness, pain, and swelling in the bilateral submandibular region. Physical examination also revealed mildly enlarged bilateral submandibular glands, with no fever. There was no erythema, ulcer, and no symptom in both the oral and oropharyngeal mucosa. He had a regular heart rate of 80bpm and blood pressure of 140/80 mmHg. There was no feature on the other system's examinations. On the laboratory tests, there was no feature, the patient had no leukocytosis, and his C-reactive protein was in a normal range. Ultrasonograph y(US) was preferred to evaluate submandibular glands. It performed bilateral diffuse homo geneous expansion of the submandibular salivary glands (Figure 1). There was no abscess and sialolithiasis. Bilateral level 1 (nearly sub mandibular gland) lymph nodes of the cervical region were normal. Doppler US performed a mildly increase in central vascularisation. The parotid glands were normal, and no sialolithiasis was seen. In the light of clinical and radiological findings, contrast-induced non suppurative sialadenitis was considered.

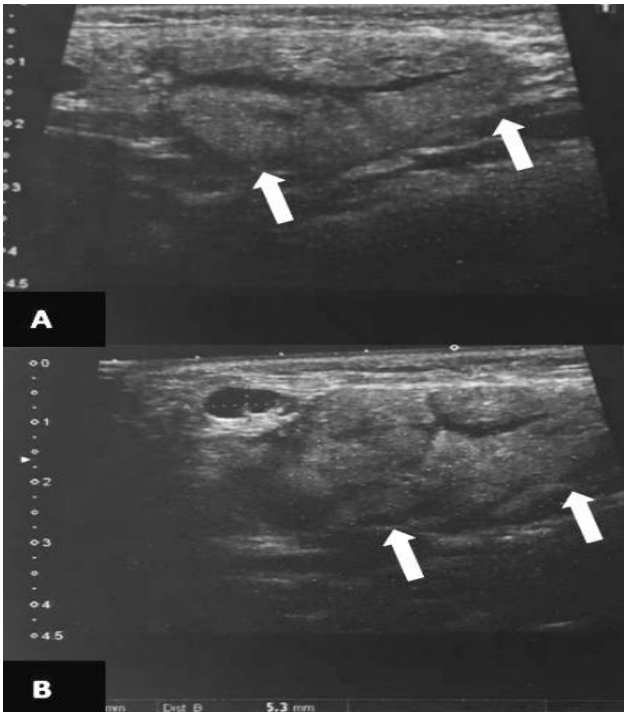

Figure 1. Ultrasonography shows widespread edema, and intraglandular hypoechoic tubular structures in bilateral submandibular glands (A: right submandibular gland; B: left submandibular gland) (white arrows). Accompanying sialolith structures are not seen.

Then, the patient was treated conservatively, with analgesic/anti-inflammatory drugs. There was complete resolution of submandibular glands swelling in 3days after administration. On follow-up, sialadenitis was not repeated (Figure 2). A written patient consent is present.

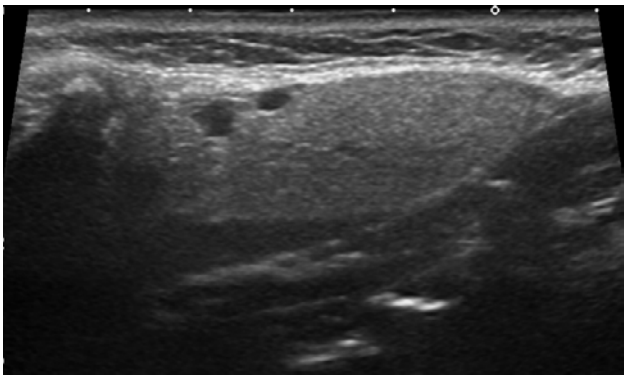

Figure 2. The submandibular gland is seen normally in the ultrasonographic examination after treatment

Discussion

Adverse reactions to intravascular contrast material are not frequent. Recent estimates of adverse reactions to iodinated contrast material range from 1 to 12%, with severe reactions comprising only 0,01 to 0,2% of total reactions. Katayama et al. (3) reported 337,647 cases of adverse reactions to ionic and nonionic contrast material are about 12% and 3%, for all that no cases of sialadenitis reported in that study. Adverse reactions are generally classified as either idiosyncratic or chemotoxic.

Idiosyncratic (anaphylactoid reactions) occur unpredictably and independently of the dose or concentration of the agent. Conversely, chemotoxic-type effects relate to dose, the molecular toxicity of each agent, and the physiologic characteristics of the contrast agents (i.e., osmolality, viscosity, hydrophilicity, calcium-binding properties, and sodium) (4).

Sialadenitis is a rare adverse effect of iodinated contrast material. The mechanism of this complication is not well known but it is believed to be caused by iodine contrast, as an idiosyncratic (i.e., anaphylactoid) reaction or due to its toxic accumulation which causes the inflammation of mucous membranes and duct obstruction due to the concentration through the sodium iodide symporter of salivary gland tissue.5 98% of iodine is excreted by the kidney and the remaining 2% by the salivary sweat and lacrimal glands. Increasing iodine concentration creates a risk of iodine accumulation in salivary glands after the administration of iodinated contrast material (6). As known, substantially of reported cases participate in chronic renal failure or repetitive exposure to iodinated contrast material. Therefore, it is supposed that chronic kidney disease (as also our patient had) could be a risk factor for the development of this complication. The incidence of this adverse effect is not known. Until now, there were many extensive studies about acute and reverse effects of contrast administration but they had no cases of contrast-induced sialadenitis (2, 3, 5, 6). McCullough et al.(7) reported that 18 of 1381 patients who had i.v. contrast administration had parotitis of which had unilateral in the most of the cases in their study. It supports that although we have few cases in the literature clinically or radiological for this adverse effect, the true incidence is more than generally assumed.The course of postcontrast sialadenitis (iodide mumps) is substantially benign. The symptoms occur within a few minutes to up to 5 days after the administration. Complete resolution always occurs, in most cases within 2 or 3 days (8).

There were no fatal reactions associated with iodide mumps that have been reported in the literature until today. Facial paralysis, pancreatic mumps-global enlargement of the pancreas-, localized erythema, enlargement of the thyroid gland and the lacrimal glands, conjunctivitis, photophobia, coryza, generalized puffiness of the face, vague abdominal pain, slight dysphagia, and mild stridor and dyspnea reported association with iodide mumps in the literature (8, 9). Our presented case had no additional symptoms with sialadenitis.

The US might help us for diagnosis; diffuse homogenous size increasing, dilate hyper echoic ducts, and increasing central vascular activity of the submandibular gland could be seen. There must be no abscess, sialolithiasis, and superlative lymphadenopathy in the US. The US also contributes to the differential diagnosis of other causes that enlarge the submandibular gland. US findings can be unilateral or bilateral. In our case, US findings

were bilateral. Increased vascularization in the central part of the gland in Doppler US indicates hyperemia in the acute stage. Cross-sectional imaging methods such as CT and MRI can also be used in diagnosis. Especially in CT, the decrease in the density of the submandibular glands indicates the presence of edema (1, 9). In the differential diagnosis, Sjogren's syndrome, sialadenosis, sarcoidosis, and other causes of infectious sialadenitis should be thought (2,5,9). Treatment is conservative, however sialadenitis complete resolution within 2 or 3 days without treatment, patients can be supported by analgesic on demand. There is no evidence of the benefits of steroid and antihistamine (1,4,5).

Conclusion

In conclusion, nonsuppurative sialadenitis is a rare adverse effect of contrast material administration, which true incidence is unknown. Although non-ionic and low-osmolar agents are more reliable than ionic and high-osmolar ones, as our case had, there were few cases reported iodide mumps after nonionic low-osmolar agents. Chronic kidney failure and repeated dose of contrast material are risk factors for this complication. We think that this adverse effect deserves more attention, and follow-up, and prevention for recurrence because its long-term importance is unknown.

Acknowledgment

Literature search, manuscript preparation, and editing were done by BS,GY, and MHA. A review was done by MHA and NB. Concepts, design, the definition of intellectual content, final approval were done by BS, GY, and MHA.

Conflicts of interest

The authors declare no conflict of interest.

Reference

1. Lucarelli A, Perandini S, Borsato A, Strazimiri E, Montemezzi S. Iodinated contrast-induced sialadenitis: a review of the literature and sonographic findings in a clinical case. J Ultrason 2018;18:359-64
2. Mihn A, Suan D. Iodide mumps. Clin Imaging 2001;37:367-8
3. Katayama H, Yamaguchi K, Kozuka T, Takachima T, Seez P, Matsuura K. Adverse reaction to ionic and nonionic contrast media: a report from the Japanese Committee on the Safety of Contrast Media Radiology 1990; 175: 621-8
4. Thomsen HS. European Society of Urogenital Radiology (ESUR) guidelines on the safe use of iodinated contrast media. 2006;60:307-13
5. Bohora S, Harikrishnan S, Tharakan J. Iodide mumps. Int J Cardiol 2008;130:82-3
6. Erdoğan D, Güllü H, Çalışkan M, Ulus T, Müderrisoğlu H. Nonionic contrast media induced sialadenitis following coronary angiography. Anatol J Cardiol 2006;6:270-1
7. McCullough M, Davies P, RicHardson R. A large trial of intravenous Conray 325 and Niopam 300 to assess immediate and delayed reactions Br J Radiol 1989;62:260-5
8. Cohen JC, Roxe D. M, Said R, Cummings G. Iodide mumps after repeated exposure to iodinated contrast media. Lancet 1980;1:762-3
9. Christensen J. Iodide mumps after intravascular administration of a nonionic contrast medium. Case report and review of the literature. Acta Radiol 1995;36:82-4

Contact Details

Büşra Şeker
Clinic of Radiology, Cizre State Hospital, Health Ministry, Cizre, Şırnak, Turkey
busrasoylu.obs@gmail.com
ORCID: 0000-0001-7766-4276

Gökhan Yılmaz
Clinic of Radiology, Bitlis State Hospital, Health Ministry, Bitlis, Turkey
gyilmazmd@gmail.com
ORCID: 0000-0003-4073-0668

Mehmet Haydar Atalar
Cumhuriyet University Faculty of Medicine, Department of Radiology, Sivas, Turkey
mhatalar@gmail.com
ORCID: 0000-0003-3076-8072

Nisa Başpınar
Cumhuriyet University Faculty of Medicine, Department of Radiology, Sivas, Turkey
nisabozbiyik@yahoo.com
ORCID: 0000-0003-4240-6001

How to cite?
Seker B, Yilmaz G, Atalar MH, Baspinar N. Acute Nonsuppurative Sialadenitis After Contrast Material Administration For Computed Tomography Angiography. Ulutas Med J. 2021; 7(2):137-140
DOI: 10.5455/umj.20210418105101