Case Report

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Urticaria and focal infection from dental origin – clinical case

Mirela Marinova-Takorova[1], Assya Krasteva[2], Yanitsa Istatkova[2]

1. Department of Conservative Dentistry, Faculty of Dental Medicine, Medical University – Sofia, Bulgaria;
2. Department of Oral Imaging and Oral Diagnostics, Faculty of Dental Medicine, Medical University – Sofia, Bulgaria

Abstract

Urticaria affects ¼ of people at least once in a lifetime. It is a clinical reaction turned by many factors, causing the liberation of vasoactive substances such as kinines, prostaglandins and histamine. Chronic urticaria is classified according its duration to less or more than 6 weeks. Foci of infection in the oral cavity and its relationship with the general health of the patient have been long studied. The oral cavity is considered as intersection of dentistry and medicine and "the window to general health". Infection from the oral cavity may create or aggravate general health.

We present a clinical case of a 49-years old female patient with chronic urticaria, presented with the typical multiple urtics located mostly on the lateral surfaces of the abdomen – bilaterally. The major complaint was severe itching and burning sensation on the skin.

The patient is referred by colleagues from the Clinic of Clinical Allergology, UMHAT "Alexandrovska hospital", Medical University-Sofia to the Department of "Imaging and Oral Diagnostics", Faculty of dental medicine, Medical University-Sofia, to perform a consultation due to the presence of focal infection of dental origin and specific testing for sensitization to dental materials in the oral cavity. The patient underwent dental focal diagnostic protocol. We remarked active dental focus tooth 46. It was endodontically retreated under antibiotic protection and after that chronic urticaria disappeared.

Keywords: chronic urticaria, focal dental infection.

Background

Urticaria is a group of diseases that share a distinct skin reaction pattern. Triggering urticaria by infections has been discussed for many years but the exact role and pathogenesis of mast cell activation by infectious processes is still unclear (1).
In 1769, William Cullen introduced the word "urticaria" (transient edematous papules, plaque with itching). Urticaria affects 15-25% of the people at least once in their lifetime. It is a clinical reaction pattern triggered by many factors causing the liberation of vasoactive substances such as histamine, prostaglandins and kinins. Urticaria is classified according to its duration into acute (< 6 weeks duration) and chronic (>6 weeks duration). Various clinical investigations may be initiated to diagnose the cause (2).

Case description

We present a clinical case of a 49-years old female patient with chronic urticaria, presented with the typical multiple urtics located mostly on the lateral surfaces of the abdomen – bilaterally(fig 1.). The major complaint was severe itching and burning sensation on the skin. Additionally, the patient had given anamnestic data for oedemas of the lips and eyelids which were successfully treated with Xyzal tab. and Allergosan tab. for a couple of days. But symptoms reappeared again after the discontinuation of the treatment. The elimination diet for some foods was not effective. The patient had insulin-independent diabetes, steatosis hepatis and cholelithiasis.

Figure 1. Multiple urtics located on the lateral surfaces of the abdomen.

The patient was referred by colleagues from the Clinic of Clinical Allergology, UMHAT “Alexandrovska hospital”, Medical University-Sofia to the Department of “Imaging and Oral Diagnostics”, Faculty of dental medicine, Medical University-Sofia for a consultation due to the presence of focal infection of dental origin and specific testing for sensitization to dental materials in the oral cavity. The patient underwent dental focal diagnostic protocol. We remarked active dental focus (Ao) tooth 46. It was endodontically retreated under antibiotic protection and the chronic urticaria disappeared. The patient didn’t have any complaints from the dentition of upper and lower jaws, neither from the oral cavity.

The patient underwent a dental focal diagnostic protocol (by prof. M. Dencheva):
1. Direct medical history, including detailed clinical examination (with recording the dental status, palpation of the regional lymph nodes and percussion of the suspected teeth).

2. X-ray diagnostics – orthopantomography(fig 2).
3. Conductive methods – EOD (electoodontodiagnostics); measurement of corrosive potential.
4. Electro skin test of Gelen.
5. Thermovision diagnostics with thermocamera Flir A310 in 6 aspects.
6. Individual inquire.
7. Complete blood count with differential, urea, creatinine, ASAT, ALAT, GGT, TSH, TAT, MAT, CRP, and other tests were conducted - ultrasound of the abdomen; SAT (skin allergic tests) with foods and inhalatory allergens have shown negative results.
8. A recommendation for testing Helicobacter pylori antigen in faeces was given – later, when the health status of the patient is stable.

Results

Two active dental foci – teeth 46 and 18 were detected, based on the results from test of Gelen and thermovision diagnostics.
EOD was performed two times. On both visits the results revealed the following values:
First visit:
• tooth 11 = 2μA; tooth 21 = 2μA; tooth 22 = 2μA; tooth37 = 15μA;
tooth 38 = 22μA; tooth13 = 3μA; (normal values 2-8 μA/tooth)
Second visit (3 days after the first one)
• tooth 11 = 2μA; tooth 21 = 2μA; tooth 22 = 2μA; tooth 37 = 30μA;
tooth 38 = 5μA; tooth 13 = 20μA; (normal values 2-8 μA/tooth)

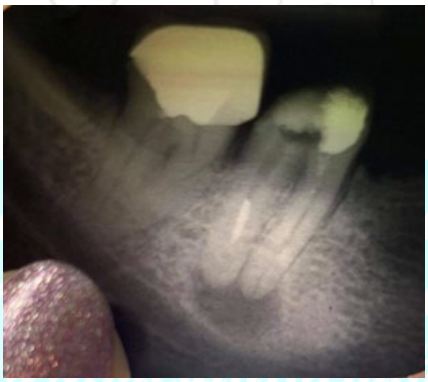

Figure 2. Initial X-ray - no good quality of root canal fillings of tooth 46

Measurement of the corrosion potential (mV)
tooth 16 = -67mV; tooth 14 = -77mV; tooth 23 = 0mV;
tooth 37 = -215mV; tooth 36 = -147mV; tooth 35 = -36mV;
tooth 34 = -16mV; tooth 44 = -10mV;
(normal values: -150 mV/tooth for amalgam restorations and non-precious alloys and total - up to -800 mV for all teeth;
+150 mV/tooth for gold restorations and precious alloys and total - up to +800 mV for all teeth)

Epi-test:

Allergens:	*Result on the 72-nd hour:*
1. Cobalt (II) chloride hexahydrate	++
2. Potassium dichromate	++
3. Ceramco	-
4. Foredent	-
5. ZnPO4 cement	-

Conclusion: Increased single values!

∑= -568mV – normal values!
*We gave a recommendation for polishing of the restorations of teeth 36 and 37 and the performance of another measurement afterwards; if then the values are still increased – epicutanious test should be performed in order to revel hypersensitivity to certain dental materials and others (biocompatible ones) to be chosen for forthcoming dental treatment.
Conclusion: there is data for hypersensitivity to dental haptens № 1, 2; they must not be used for forthcoming dental treatment.

Dental recommendations:

1. Periodontal treatment of the teeth – professional dental clinical oral hygiene of the dentition (cleaning with ultrasound of supra- and subgingival calculus) to be performed; instructions about methods and means for maintaining proper and adequate personal oral hygiene to be given.
2. Extraction of tooth 18 under antibiotic treatment with Augmentin – 2*1g., 1 day before the extraction, in the day of the surgical manipulation, and continues with the antibiotic intake 1 tab./daily till the end of the endodontic retreatment of tooth 46;
3. In the day of the beginning of antibiotic intake, to start additionally intake of Fungolon a`100mg – 1tab./daily, and “Bio Gaia Prodentis” – по 1tab./daily lozenges, for 3 months.

Figure 3. X-ray after root canal retreatment

Retreatment of active dental focus - tooth 46 was performed in two visits. The old root canal filling was removed, and adequate working length was determined on the first visit. Enlargement of the canals was performed using Wave One Gold reciprocating files (Dentsply Sirona). Copious irrigation with sodium hypochlorite combined with activation of the solution with Endoactivator (Dentsply Maillefer) was performed.

A temporary dressing with calcium hydroxide was placed in the canals for two weeks. The temporary filling of the canals was removed, and they were enlarged with once again till a bigger file size. The canals were filled with taper matched single cone and bioceramic-based sealer (WellRoot ST – Vericom)(Fig 3.).
The levels of ESR and CRP are normal.
4. The patient was given recommendations for another dental appointment for follow-up in order to perform new test of Gelen and EOD 3 weeks after the end of the endodontic retreatment; after that on the 6-th and 12-th month after the dental rehabilitation.

Discussion

Hippocrates, mentions an association between resolution of arthritis and extraction of a decayed tooth. Research on the relationship between oral health and systemic diseases gained rapid acceleration after the death of President Theodore Roosevelt from odontogenic sepsis. Different investigators conclude that specific infections in the oral cavity may create foci of infection that may affect systemic health (3).
A study examined the associations of common oral infections with survival and infectious complications in Haematopoietic stem cell transplantation recipients (4).
Another article discussed the scientific link between bacteriospermia and foci from dental origin. Bacteriospermia requiring medical treatment was diagnosed in more than 70% of the subfertile patients who had attended the gynecological clinic in Aachen since 1988. Specific treatment with antibiotics did not reduce the concentrations of bacteria in sperm in 23% of all cases. Thirty-six patients with bacteriospermia resistant to antibiotic therapy were then subjected to dental examination. A high incidence of potential dental foci was found in all patients (5).
Relationship between urticaria and dental focal infection
In most cases of chronic urticaria, a specific etiology cannot be determined. This should not discourage the physician from continuing to search for its underlying cause. Infection has long been considered a cause of urticaria, although the incidence is probably low when all other common causes are considered.
Recent studies suggest that chronic odontogenic infections may pose a risk of myocardial infarction, cerebral ischemia, and arteriosclerosis. So far, however, the correlation between urticaria and dental infections has rarely been studied. A study was performed on 66 patients using a standardized questionnaire and dental examination to establish a relationship between the severity of urticaria and dental problems. The authors conclude that chronic dental infections do not appear to correlate with an increased risk of urticaria (6).
K Tanphaichitr presented a case of chronic urticaria of five years duration, which was associated with chronic extensive dental infection and periodontal disease. The article aimed to show the importance of infection as a triggering mechanism of urticaria (7).
Another study looked at 62 male patients and 88 women aged 21-40 years. From all patients, 12% showed paranasal sinusitis, with maxillary sinusitis 7.3%. But in this article, there is no active search for a connection between the maxillary sinusitis and delays infection, as well as a link with other foci in the oral cavity (2).
In spontaneous acute urticarial, there is no doubt for a causal relationship to infections and all chronic urticaria must have started as acute (8).
A study published in 1964 found that roentgenographic examinations found sinusitis in 32% of 59 chronic urticaria, and dental focal infections in 29% of 45 patients. At least 8 cases with complete remission of chronic urticaria after elimination of dental focal infections have been described (9, 10, 11, 12, .13, 14, 15).
A recent study identified tonsillitis or sinusitis in almost 50% of analyzed patients [16]. Anti-streptococcal antibodies have been described in 10-42% of patients with chronic urticarial, and antistaphylolysin antibodies in 1-10% of patients (reviewed in [15).

Recent data found high nasal carriage of Staphylococcus aureus in patients with chronic urticaria compared to controls suggesting that nasal carriage functions as focus [17].
In a study published in 1967 it was described that the outstanding historical feature in 15 of 16 children with chronic urticaria was recurrent upper respiratory infection, pharyngitis, tonsillitis, sinusitis, otitis, often by streptococci or staphylococci [18]. Remission of urticaria was frequently noted following antibiotic therapy [18].
Nevertheless, systematic antibiotic treatment studies of dental or ENT focal infections are lacking although benefit after oral cephalosporin or amoxicillin treatment has been described [15].
The presented article poses an accent to a patient with chronic urticarial who underwent specialized dental clinical examination for infections from dental origin.
After establishing ones, the patient has cured the foci in the oral cavity, which is associated with the disappearance of the rash and the complaints

Conclusion

The attention of dermatologists and general practitioners should be drawn on the relationship of urticaria with foci of odontogenic or stomatogenic origin, along with proven etiological factors for urticaria. Treatment of food urticaria is a long process, and the symptoms create a huge discomfort of the patient. It is reasonable when establishing a diagnosis of urticaria to make an examination of foci in the oral cavity.

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Corresponding author:
Mirela Marinova-Takorova
Department of Conservative dentistry, Faculty of Dental Medicine, Medical University, Sofia
Address: 1, Georgi Sofiisky Blvd., Department of Conservative dentistry
Sofia 1606, Bulgaria;
e-mail: marinova.takorova@gmail.com