



SECONDARY MEDIASTINITIS AT ODONTOGENIC INFLAMMATORY DISEASES OF MAXILLOFACIAL AREA

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12 patients with acute odontogenous mediastinitis is were diagnosed and treated. The authors stress that the disease is rare (0,8%) complication of odontogenic infection with high rate of lethal outcome (25%) due to delayed diagnosis and insufficient surgical intervention despite the severe course of the ailment. With timely performed surgery and intensive care, 8 patients had a benign outcome of the disease.

Keywords: Cellulose mediastinum, a mouth floor phlegmon, a symptom of Gerke, Ravich - Shcherbo, paratracheal space, lambass a cut.

The analysis secondary mediastinitis as complication odontogenic inflammatory processes observed at 12 patients from 3525 patients, treated in clinic of maxillofacial surgery of the Bukhara regional versatile medical center over the last 10 years is made. In preventive maintenance of these complications the main role is played by early hospitalization, timely operative interventions and rational medicinal treatment.

The question on complications of inflammatory processes of maxillofacial area gets now a special urgency. Basically at complications odontogenic inflammations diseases mandible - obverse area purulent mediastinitis has the big threat for life of the patient. The sharp poured inflammation fibermediastinum-mediastinitis is one of the heaviest on a current and the forecast of inflammatory processes. Depending on an etiology and pathogenesis of mediastinitis divide on primary and secondary. odontogenicmediastinitis concerns to



secondary as is a consequence of distribution of pyo-inflammatory process from teeth and on cellulose to neck space in mediastinum.

The urgency of a problem of diagnostics and treatment odontogenic mediastinitis is defined by growth of frequency of inflammatory diseases of fabrics of maxillofacial area (MFA), frequent generalization of micro flora, long invalidity of patients and high probability of failures.

Prominent feature of disease is difficulty of its early diagnostics, exclusive weight of a current and high lethal: on the average - 40 % [1,4,6,14,18,19]. Authors explain so high frequency of failures, mainly, untimely diagnostics and excessive conservatism in a choice of a method of treatment.

According to different authors, frequency of lifetime diagnostics mediastinitis makes 20, 5-50%, and now disease diagnostics continues to remain one of difficult solved problems [4,11,21].

Complexity of early diagnostics odontogenic mediastinitis speaks absence of symptoms, pathognomic for mediastinitis early stages of its development, complicated differential diagnostics of phlegmon MFA, necks and odontogenic mediastinitis.

For odontogenic mediastinitis at its untimely diagnostics the progressing current with lightning distribution of purulent-necrotic process against the broken immunity on all departments mediastinum with development polyorgan and hemodynamic infringements, frustration mentalities that is typical for clinically infectious-toxic shock is characteristic. odontogenic mediastinitis quite often comes to light late and consequently that its signs are imposed on already available purulent disease which proceeds with an intoxication and high temperature of a body.

Special vigilance should cause sick of diabetes. In connection with the lowered resistibility of an organism and vascular insufficiency inflammatory process at them gets destructive character with formation of necrotic zones, fast distribution infiltrates; frequency of purulent-inflammatory complications and lethal at persons of this group more than in 3 times exceeds those at the people, not suffering a diabetes. Terms of treatment of such patients increase in 2 times. Prompt distribution at them purulent exudates on a course of a neurovascular bunch of a neck or along a trachea is not always accompanied by typical



symptomatic that can be at the bottom of underestimation of weight of developing complication and overdue diagnostics [9,30].

Special attention subject are patients with cardiovascular insufficiency. The researches spent in our clinic of O.V.Shalak [17], have shown that they have expressed infringements homeostatic the mechanisms, shown by hemodynamic deterioration in fabrics against what there is a delay of deducing to urine and a saliva of toxic products: substances with low and average molecular weight and oligopeptids. Level endogenous intoxications As a result raises, the burdening syndrome develops at presence odontogenic inflammatory processes in fabrics MFA and necks.

Diseases of cardiovascular system lead also to occurrence hypoxia in fabrics owing to development microcirculatory frustration that contributes to formation anaerobic inflammation forms.

Thus, the phlegmon combination cellulose spaces of a neck and somatic diseases allows to predict the complicated current sharp odontogen infections, high probability of development odontogenic mediastinitis and demands special vigilance of

the doctor. Are necessary timely and wide disclosing of phlegmon cellulose neck spaces, appointment antibacterial and disintegration for therapy.

Mediastinitis characterized the syndromes making a triad, each of them it is caused by the independent pathogenetic mechanism. 2 from them - painful and toxic - are constants and define a disease background; the third - pressure a neurovascular bunch - defines character and a variety of the symptoms causing complexity of diagnostics at early stages of development of disease.

The first symptom complex - painful - includes group of the symptoms characterized by the accruing pain in crook space which amplifies at casting back heads (a symptom of Gerke), at a palpation, stroking or procrastination up a neurovascular bunch of a neck (Ivanov's symptom), at swallowing and a cough. The cough symptom is characteristic for odontogenic mediastinitis as is a consequence of a hypostasis of fabrics of a mouth floor, a soft palate and pharyngeal spaces at development of phlegmons of corresponding localizations that is always accompanied by irritation of a root of language.



At development of sharp inflammatory process in mediastenum there is the symptom of Ravich-Shcherbo characterized by retraction of integuments in area яремной of a hollow at a breath, and paravertebral Steinberg's symptom - occurrence rigidy back muscles. The symptom testifies to possibility of development of sharp inflammatory process in mediastenum Rutenburga-Revutsky, characterized by occurrence support a breast at trachea displacement. At late stages of development mediastinitis, in the presence of total defeat mediastenum, it can be observed compression a symptom of Popova - strengthening retrosternal pains and occurrence cough a reflex at tapping areas of calcaneal bones at the extended bottom extremities in position of the patient lying. Besides, to be observed positive diafragmal a symptom - morbidity in hypochondrium and pressure of muscles of a forward belly wall.

At back mediastinitis mark irradiation pains in interscapular or epigastric areas and their strengthening at the slightest pressure, and also at pressing on awned shoots of vertebrae, especially 5th chest. At all patients with mediastinitis sharp morbidity in the field of a breast and edges is defined. If in hypodermic cellulose a neck or a thorax there is a gas congestion, the symptom crepitations comes to light. Development of a painful syndrome defines the compelled position of the patient in bed as attempt to be straightened causes strengthening of back pains, a thorax and in the field of a pharynx.

The second group of symptoms is defined by an accruing intoxication. At the patient the consciousness is broken; there is drowsiness, unreactivity, apathy, delirium. Sometimes, in hard cases, develops intoxication delirium which is shown by aggression signs, attempt to flight from chamber, an attack on associates. The euphoria quickly replaced by loss of consciousness - display of a terminal condition is less often observed.

The third group of symptoms is defined pressure vessels and nervous trunks. At many the syndrome of the top hollow vein shown by a hypostasis of the top part of a trunk, a neck and the person, expansion of hypodermic veins develops. It is accompanied by the headache strengthening, accruing noise in ears, cyanosis integuments of the person. Pressure large vessels and nerves leads to infringement of function of an internal, pressure and the irritation purulent exudate wandering nerves causes infringement of a warm rhythm, a bradycardia, a bronchospasm. At a number of patients we observed sinus a tachycardia, vibrating



arrhythmia. In process of knocking over of inflammatory process in средостении the myocardium condition improved.

The symptom of Gornera testifies to involving in sharp inflammatory process of a symptomatic trunk. An irritation symptom diaphragmatic nerves is the hiccups. Owing to diaphragmatic compression a nerve there is a paralysis of a diaphragm which can lead to breathe infringement.

The phenomena concern number of very important and heavy symptoms pressure tracheas, the main bronchi and an esophagus. In such cases the clinical pattern mediastenitis becomes rather heavy. Besides pressure these members, there comes their shift, and also destruction of their walls. pressure large pots and nerves invokes resorption toxins and decomposition products of fabrics that, according to clinical physicians, enhances distresses of functions of cardiovascular and respiratory systems.

Stuffs and procedure. In branch jaw- obverse surgery of the Bukhara regional versatile medical centre from 2010-2017 y. there were 3525 patients, with odontogenic inflammatory processes. At 12 patients, from them 8 women and 4 men at the age from 20 till 55 years it is diagnosed odontogenic mediastenitis.

The aggravation odontogenic a periodontitis was the cause mediastenitis. Causal there were the first, the second and the third моляры the inferior jaw. Forward mediastenitis it is diagnosed for 9 patients, anteroposterior mediastenitis at 3 patients. The arrived patients in the course of treatment were exposed to clinical, laboratory bacteriological, radiological inspection, consulted at thoracic the surgeon, otorhinolaryngologist, the neuropathologist, the therapist and resuscitator.

Finding of investigation and their discussion. Duration of disease by the time of receipt has compounded 5 +/- day, and 8 patients with the expressed clinical exhibiting have been translated from the central regional hospitals where were on treatment from 3 till 7 days. At all patients inflammatory process of the abscesses localized in the field of a mouth floor, has propagated on a neck and mediastenum. The anatomical precondition of occurrence odontogenic mediastenitis the report pharyngeal spaces and mouth floor celluloses on a course of a neurovascular fascicle of a neck and pretracheal celluloses with forward



medistinum. At an inflammation of cellulose of a mouth floor pharyngeal infiltration is marked not only in cellular spaces of a neck, but also in mediastenum.

We consider necessary to fix attention of the doctor to sometimes taking place very artful mediastenitis symptom - euphoric behavior of the patient: they are revived, joke, at night go on chamber or a corridor, try to enter in 'entertaining' conversation with the personnel of branch on duty or awake neighbors in chamber. It euphoric behavior be frequent can a harbinger of the proximate lethal outcome of illness and consequently acceptance of urgent measures of intensive therapy and preparation to resuscitation to actions demands.

Overdue diagnostics odontogenic mediastenitis at necrotic phlegmon of a neck speaks first of all insufficient acquaintance of the majority of surgeons to the basic features of clinical exhibiting non-clostridial an anaerobic infection contamination a neck (absence of characteristic signs for usual inflammatory process) and with difficulty of differential use of known clinical symptoms mediastenitis symptom as they thus lose the typicalness and specificity while the anaerobic infection contamination propagates downwards, amazing cellulose mediastenum. Disease symptoms are often masked primary process which was a source mediastenitis.

At etiologically necrotic anaerobic phlegmon characteristic signs for usual inflammatory process in fabrics are not found: the easy smoothness of contours of a neck is observed, pain reaction can be insignificant; clinical signs of involving in cellulose process mediastenum are not expressed, shaded by primary process on a neck, having in development initial stages poor symptoms (J.S.Zaharov, 1991).

Under our data [10], the basic inducers odontogenic mediastenit are gram-positive facultative aerobes: staphylococcus (*Staphylococcus aureus*, *Staphylococcus epidermidis*, *Staphylococcus saprophyticus*), and also streptococci (*Streptococcus viridans*, *Streptococcus faecalis*). Bacteria of sort *Neisseria* have been presented *N. haemophylis*, *N. influenza*.

Anyway there was an impurity anaerobic non-clostridiamicro flora. According to our researches, anaerobes at odontogenic mediastenitis, being primary flora odontogenic the infectious locus, cause high prevalence of process and weight of flow of disease.



At odontogenic mediastenitisparentages we consider as the most expedient to resort to the early surgical intervention combined with rational antibacterial therapy, disintegration and fortifying treatment.

By way of illustration we result a short extract from the case record № 505.

Sick 20 years has arrived in branch jaw- obverse surgery of the Bukhara regional versatile medical center on January, 12th, 2016 with the diagnosis a poured necrotic phlegmon of a mouth floor, submandibular area on the right and at the left, a neck phlegmon at the left. From the anamnesis it is found out on January, 6th, 2016 was ill 36 dens, to the doctor has reverted for 3 day from the disease beginning when there was a painful swallowing and a swelling of both submandibular areas. In district clinic penicillin injections have been appointed, however the state of the patient worsened also it is hospitalized in branch jaw - obverse surgery of the Bukhara regional versatile medical center. At receipt in clinic the general state heavy, position forcedly semi sitting, breath of frequent 35 times in a minute. Body temperature raised to 39 - 40 °C. With, the tachycardia to 150 b. was observed. In minute, pulse arrhythmic weak filling and strain, arterial pressure of 120/70 mm hg Tints of heart are muffled, speeded up. In lungs rigid vesicular breath, is listened rattles, a gate soft painless, the liver and a lien are not increased. Urination free, painless.

Locally it is defined poured painful infiltrate both submandibular areas and on the left surface of a neck in front up to jugular cuttings. The skin over it hyperemic, at a palpation is defined fluctuation. Mouth opening is circumscribed, 36 dens it is blasted, it is marked purulent separated of adjacent periodontal a pouch.

The patient is urgently operated under the general intravenous callipseaanesthesia - removed 36 dens, are effected collarlike cuts in submandibular areas and oral cavities of both sides and on neck centerline. From intramuscular spaces pus has precipitated out is light - yellow colour with a fetid odour. The toilet of a wound with hydrogen dioxide and furatsilin, thandrained, outside a bandage with furatsilin.

Despite it, for the third days at sick the hypostasis of a neck which has propagated on a forward surface of a breast again has increased. At a palpation infiltrate dense, painful the patient takes over the forced position, a symptom of Gerke, RavichShcherbe positive. The diagnosis diffusion of a phlegmon to a forward surface of a breast and in mediastenum is



positioned, is advised by the chest surgeon. Therefore, the patient urgently effects phlegmon dissecting supraclavicular areas of a forward surface of a breast and top mediastinostomy.

So the patient are again effected lampas cuts, backing off 1,5 cm from the breast bone handle the phlegmons supraclavicular areas at the left and on the right is dissected, effected a lobby top mediastinostomy.

Into intermuscular spaces are introduced gauze turunda the moistened 3 % penozone, besides between muscles some (5-6) rubber tubes for the subsequent constant dialysis of a wound hydrogen dioxide and furatsilin are introduced.

For the patient intensive supervision is positioned. To the patient it is appointed: 80 million Unit of sodium salt penicillin it is a day intravenously trickling on physiological solution, metrogil 300 ml intravenously a day, antistaphylococcal plasma, antigangrenous whey (only 5 medical doses) single group Er - mass bunch vitamins B and C, hyposensitizing, warm and sulfanilamide drugs nystatin of 500 mg. 4 times a day, besides to the patient daily flowed over to 3 l of fluid (10 % glucose, a gemodez, bicarbonate sodium, physiological solution, polyglyukininfusol). Position of Trendelenburg has been attached the patient. (Fig. 1).

Bulk analysis of blood HB - 98 rg/l erythrocytes - 3,5 - 10/12 l, leucocytes - 8,9 - 10/9, lymphocytes on 23 field of vision. Urea of blood of % of 7 mg, Saccharin of blood of % of 6,0 mg, protrombin an index of 80 %, billirubin of blood the general 7,28.

The insulator in which was the patient quartz crystal 4 times a day. The used tools were exposed to fractional sterilization. The wound through system tubes by a constant dialysis was washed out by hydrogen dioxide, furatsilin. (Fig. 2; 3). The first 10 days change of bandages was manufactured 4 times day. Constant system to a dialysis applied before petering of a hypostasis and enriching of state of health of the patient. After effected treatment the state of health of the patient has improved, hemodynamic indexes became stable, results of retests were normalized, the face edema and necks slept, wounds were cleared of necrotic fabrics, wounds were healed by the secondary tension. The patient is written out on February, 17th 2016 year with enriching.

Unfortunately, sometimes even so intensive therapy appears unsuccessful, especially when it begins too late. But dissecting died in connection with odontogenic



mediastinitis shows that the death has come at them as a result of progressing of purulent process in mediastenum, a septic state, a purulent pleurisy, a pneumonia, a hypostasis of lungs, purulent pericarditis expressed to a dystrophic parenchymal members and other heavy reciprocal pathological changes.

Patient H. 21 year, has arrived in clinic 31/08 - 96 g with the diagnosis a poured necrotic phlegmon of a mouth floor, pterygoid spaces pharyngeal areas at the left and on the right and both sides of a neck, purulent mediastinitis, a sepsis, a bilateral septic pneumonia, a sharp hypostasis of a throat and respiratory insufficiency II-III of degree. From the anamnesis it is found out 27/08-16 g was ill 7 dens lower jaw on the right. In polyclinic one root and after that the hypostasis accrued has been removed. The patient have sent in CRH where dissecting of phlegmon of a mouth floor and submandibular area has been effected. However, the state of the patient progressively worsened, the patient has been translated in branch MFA at regional clinical hospital. At receipt the general state heavy, body-40zS temperature, a short wind, pulse 115 In a minute. Arterial pressure 90/60mm.mer.bar. In lungs noise of a friction of a pleura, wet rattles is listened.

This very day on August, 31st, 2016 has been effected inferior tracheostomy and phlegmon pharyngeal wing areas are dissected, phlegmon of a neck from both sides and is effected top mediastinostomy where precipitated out about 150-200 ml of pus with a fetid odour with blood impurity.

In the dissected lumens polyethylene drainages and tubes for a dialysis are visible. The patient is translated in chamber of intensive supervision. Despite our actions the state of the patient has sharply worsened, have come an apnea and hearts.

REFERENCES:

1. Abakumov M.M., Pogodina A.N., Chubarija I.G. Feature of clinical flow and surgical tactics at odontogenic purulent mediastinit. *Owls honey* 1991; 10: 30-33.
2. Bazhanov N.N., Kozlov V.A., Robustova T.G., Maksimovsky J.M. State and prospects of preventive maintenance and treatment of purulent inflammatory diseases of maxillofacial area. *Stomatology* 1997; 76: 2: 15-19.



3. Garbunija R.I., Kolesnikov E.K. Computer a tomography in clinical diagnostics. M: Medicine 1995; 352.
4. Gubin M. A, Lazutikov O. V, Lunev B. Modern features of treatment of purulent diseases of the person and a neck. Stomatology 1998; 77: 5: 15-18.
5. Desjaterik V. I, Krivitskij J.M., Svetlovskij A.A., ShapovaljukC.C. Surgical treatment of a putrefactive phlegmon of a neck.A wedge 1998; 3: 27-28.
6. Egorov O. A. Features of clinical flow odontogenic mediastenitis, its developments caused by the mechanism. Clinical research: St-Peterburg 2002; 24.
7. Zaharov J.S. Diagnostics contact mediastenitis at necrotic phlegmons of a neck. Owls honey 1991; 3: 69-71.
8. Zverovskaja N.V., Shuster M.A., Shirshov V.M, Fedotova L.B.Phlegmon of a neck and purulent mediastenitis.Owls honey 1977; 3: 8-12.
9. Goats of Century And. The urgent stationary stomatologic help. L: Medicine 1998; 288.
10. Kozlov V.A., Egorov O. A. Odontogenic mediastenitis. Clinic, diagnostics, treatment. St-Peterburg: МАПО 2002; 23.
11. Kozlov V.A., Egorov O. A. Survival rate of the patients who have tolerated odontogenic mediastenitis, at the remote stages of supervision. Institute of stomatology 2003; 1: 27-29.
12. Kolesov A.P., Stolbovoj A.V., Kocherovets V.I. An anaerobic infection contamination in surgery.L 1989; 160.
13. Korotaev A.P., Popov N.G. State of cellulose средостения at inflammatory processes of a mouth floor and a neck. Stomatology 1981; 60: 1: 80-81.
14. Lopatin B.S, Kishchenkova V.I.Paratonsillitis complicated by a purulent parapharyngitis, mediastenitis and septic pericarditis. Otorinoloringology news 1973; 35: 4: 89-90.
15. Olejnik I.I., Ponamareva A.G., Tsarev V. N, Kurakin A.V. Species composition of associations of inducers odontogenic infection contaminations and its prospects antibiotic therapy. Voen-honey mag. 1992; 10: 50-52.



16. Ushakov R.V. Diagnostics and treatment of pyoinflammatory diseases of the person and a neck: dis/.... Dr.s of medical sciences. M 1992; 42.
17. Shalak O.V. Role of the loci odontogenic infection contaminations in formation of the metabolic status of an organism at patients with concomitant cardiovascular diseases: dis/ Sciences. St-Peterburg 2000; 15.
18. Shperling I.D. To the characteristic of is purulent-septic diseases. Stomatology 1963; 3: 59-60.
19. Alsoub H., Chako K.C. Descending necrotising mediastinitis. Postgrad Med J 1995; 71: 832: 98-101.
20. Brook I., Frazier E.H. Microbiology of mediastinitis. Arch Int Med 1996; 156: 3: 333-336.
21. Cherveniakov A., Cherveniakov P. Surgical treatment of acute purulent mediastinitis. Eur J Cardiothorac Surg 1992; 6: 8: 407-410.
22. Diaine B., Albertini M., Coussement A. Mediastinal extension of retropharyngeal abscess. J Radiol 1992; 73: 4: 229-233.
23. Finegold S.M., George W.L., Mulligan M.E. Anaerobic infections. Part 1. Dis Mon 1985; 31: 10: 1-77.
24. Guittard P., Ducasse J.L., Jorda M.F. et al. Mediastinitis caused by odontogenic anaerobic bacteria. Ann Fr Anesth Reanim 1984; 3: 3: 216-218.
25. Howell H.S., Prinz R.A., Pickleman J.R. Anaerobic mediastinitis. Surg Gynecol Obstet 1976; 143: 3: 353-359.
26. Levine T.M., Wurster C.F., Krespi Y.P. Mediastinitis occurring as a complication of odontogenic infections. Laryngoscope 1986; 96: 7: 747-750.
27. Mevio E. Anaerobic cervical cellulitis: a therapeutic approach. Acta Otorhinolaryngol Ital 1993; 13: 6: 525-536.
28. Murray P.M., Finegold S.M. Anaerobic mediastinitis. Rev Infect Dis 1984; Suppl 6: 123-127.
29. Snow N., Lucas A.E., Grau M., Steiner M. Purulent mediastinitis abscess secondary to Ludwig's angina. Arch Otolaryngol 1983; 109: 1: 53-55.



30. Sobolewska E., Skokowski J., Jadczyk E. Pleural empyema as complication of descending necrotizing mediastinitis. *PneumonolAlergol Pol* 1997; 65: 5-6: 364-369.

31. Zeitoun J.M., Dhanarajani P.J. Cervical cellulites and mediastinitis caused by odontogenic infections: report of two cases and review of literature. *J Oral MaxillofacSurg* 1995; 53: 2: 203-208.