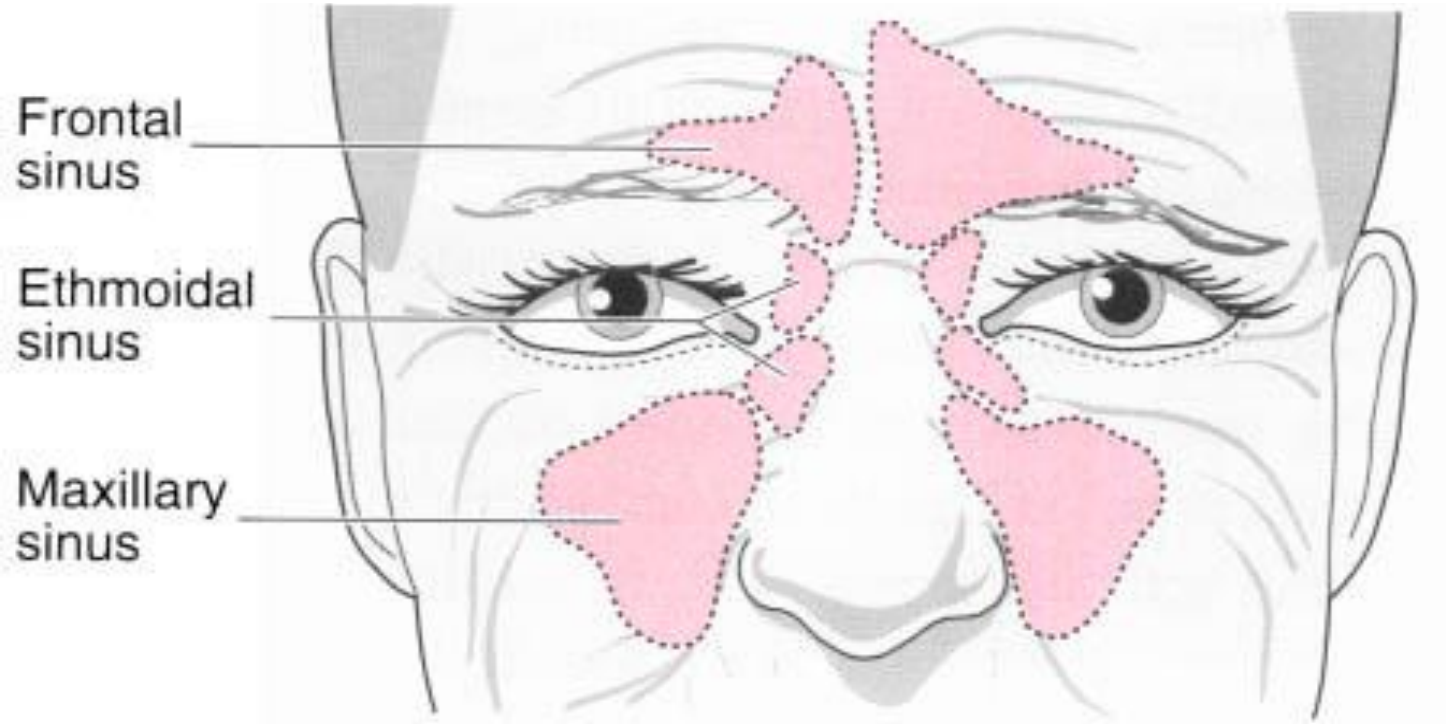
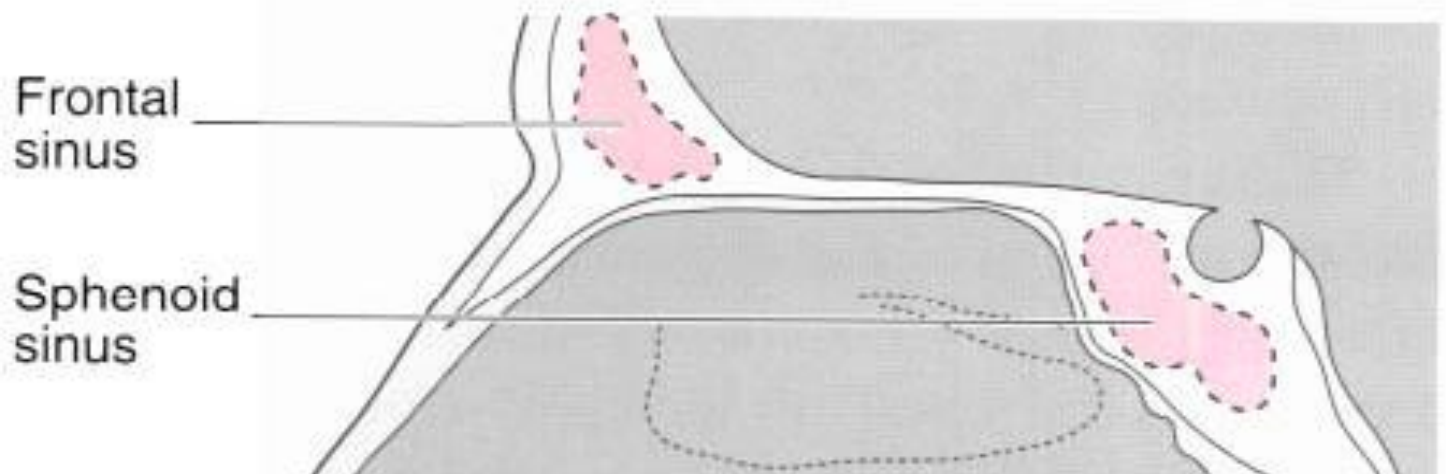
Odontogenic inflammation of the maxillary cavity (Sinusitis)

Sofia Lehtman Doctor of Medicine, Maxillofacial Department


Frontal sinus
Ethmoidal sinus
Maxillary sinus

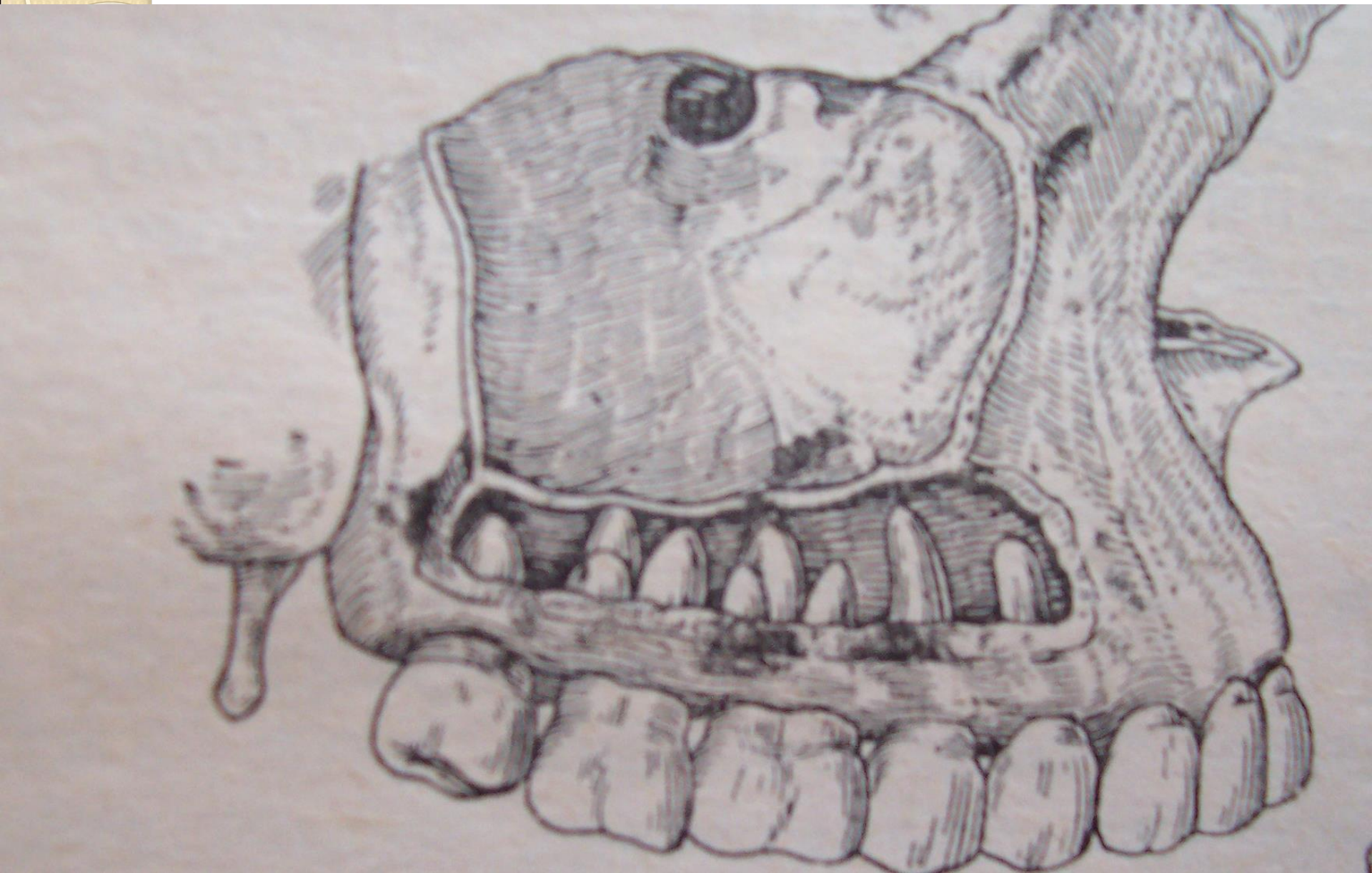

Frontal sinus
Sphenoid sinus

Pathogenesis

- Sinusitis appears during the penetration of the infection in a maxillary cavity. Depending on character, ways of infection penetration, pathogenesis, and sinusitis are distinguished as:
- Odontogenic;
- Rhinogenous;
- Hematogenic;
- Traumatic;
- Allergic.

- More often odontogenic sinusitis appears in the result of infections spread from the inflamed periodont (usually upper small and big root teeth, rarer – canine), in other words from the focuses of acute of chronic periodontitis. The possibility of such infection spread is explained by the range of circumstances, on the first place foremost amongst is topography-anatomical adjacency of apexes specified teeth to the mucosa membrane of the supramaxillary cavity floor. Launch their development on the 10^{th} week of people live, supramaxillary cavity increase gradually, comes up to 15-40 cm^2. In the case of its overdeveloping the cavity floor descends in the alveolar crest.

Odontogenic sinusitis appears in the result of infections spread from the inflamed periodont small and big root teeth, rarer – canine : 1.8, 1.7, 1.6, 1.5, 1.4, 1.3, 2, 3, 2.4, 2.5, 2.6, 2.7, 2.8

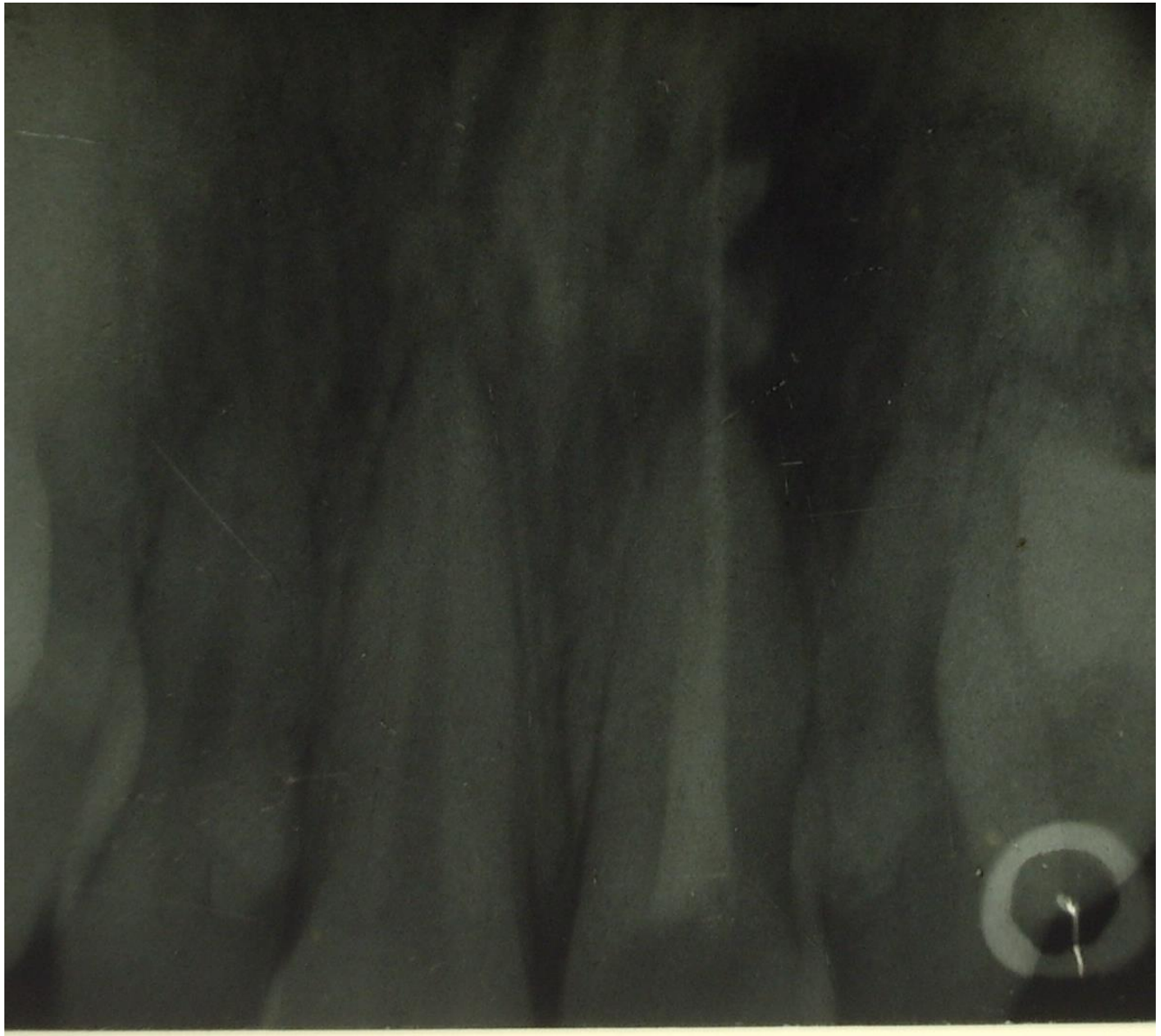


- Usually the distance between apexes of small and big root teeth and floor of supramaxillary cavity fluctuates from 0 till 10-12 mm, in the result of which at many people osseous septum between the cavity mucosa membrane and teeth apexes is insignificant thin or is absent entirely. In such cases the teeth apexes are covered only by mucosa membrane directly.
- In the case of the osseous septum between the periodont and mucosa membrane of supramaxillary cavity is expressed sufficient, as often as not it is *destroyed in the granulation or granulomatous periodontitis process*.

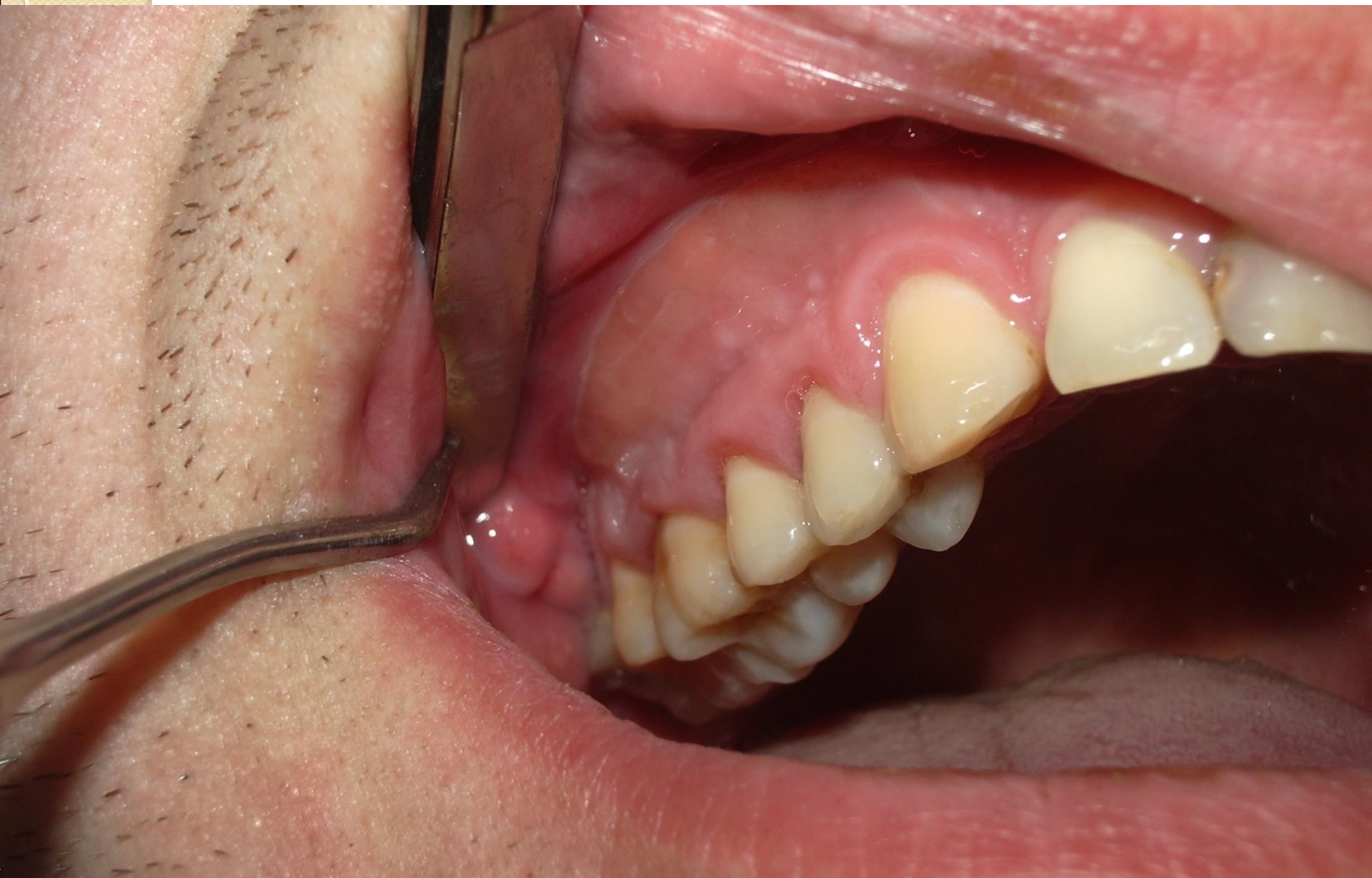
Clinical picture

- Odontogenic sinusitis according to its clinical course could be acute, subacute and chronic, and also represent the aggravation of inflammatory inflammation.
- G.N. Marchenko (1966) presupposes the following clinical classification:
- 1. Closed form: a) sinusitis due to of chronic periodontitis and b) sinusitis due to suppuration of odontogenic cysts which are grown in the supramaxillary cavity.
- 2. Opened form: a) perforated sinusitis and b) sinusitis, developed as aggravation of the chronic osteomyelitis of the alveolar crest or maxilla body.
- By the nature of pathomorphological changes odontogenic sinusitis could be divided into catarrhal, purulent, polypous and purulent-polypous.

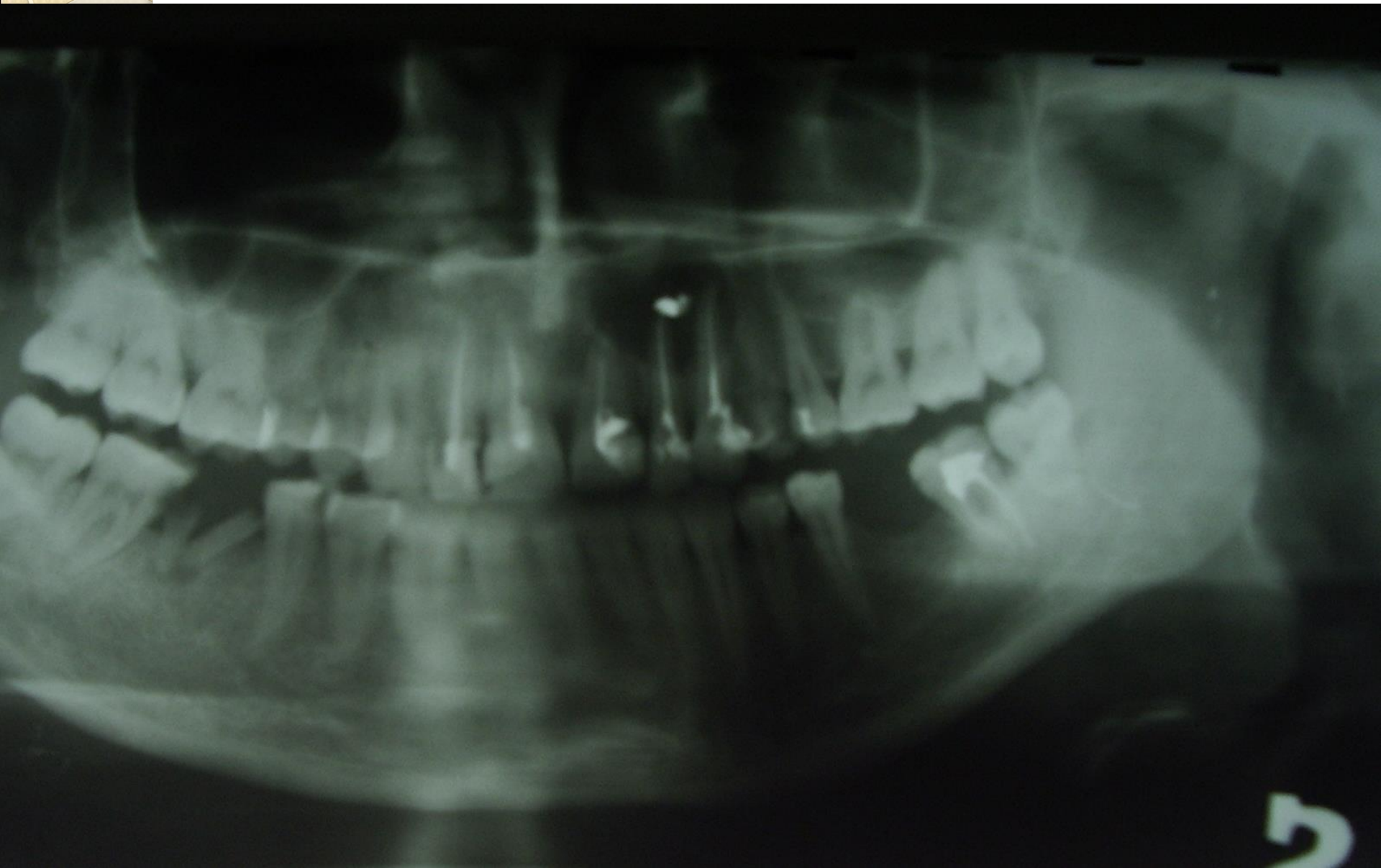
sinusitis due to of chronic periodontitis



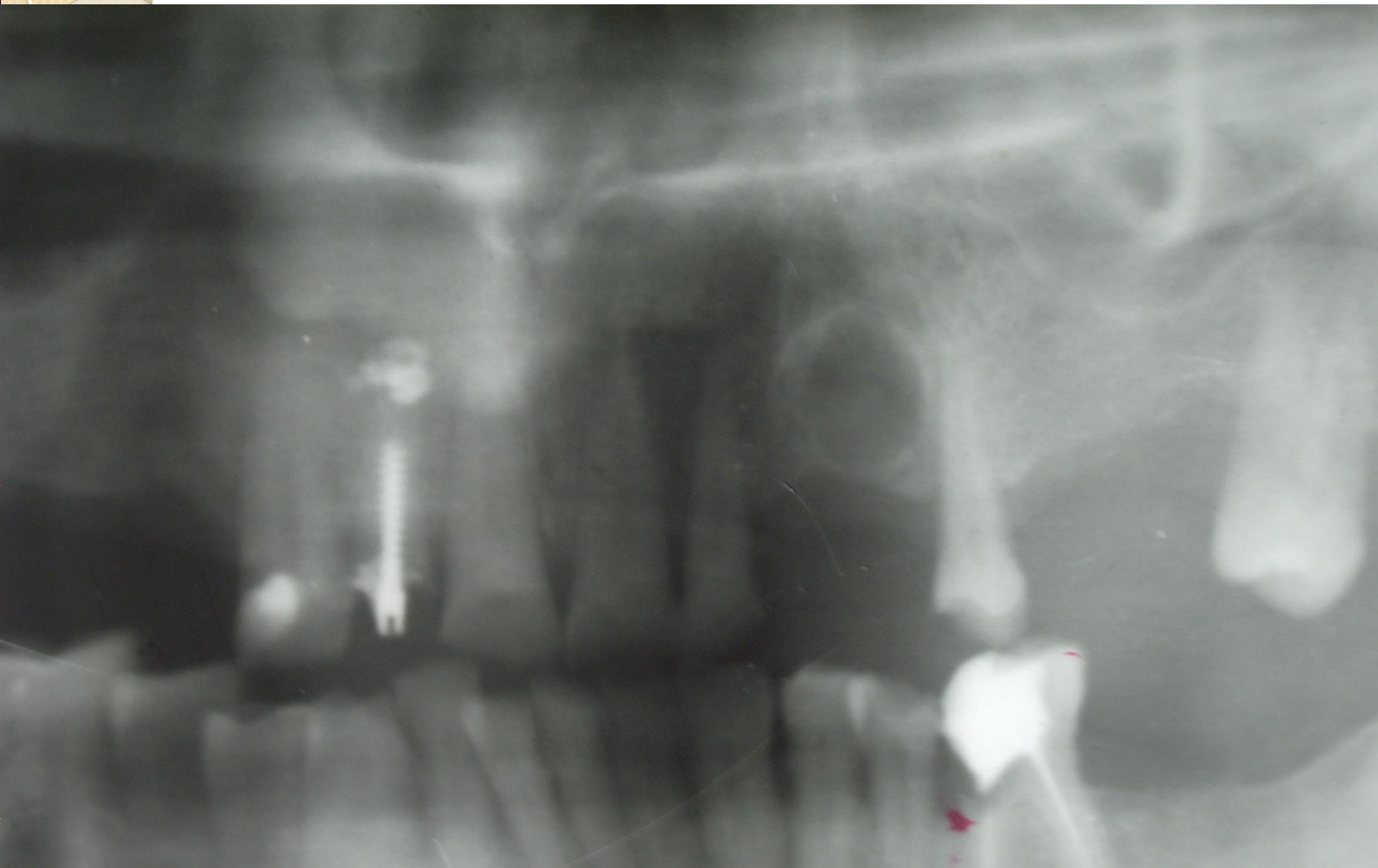
sinusitis due to of chronic periodontitis

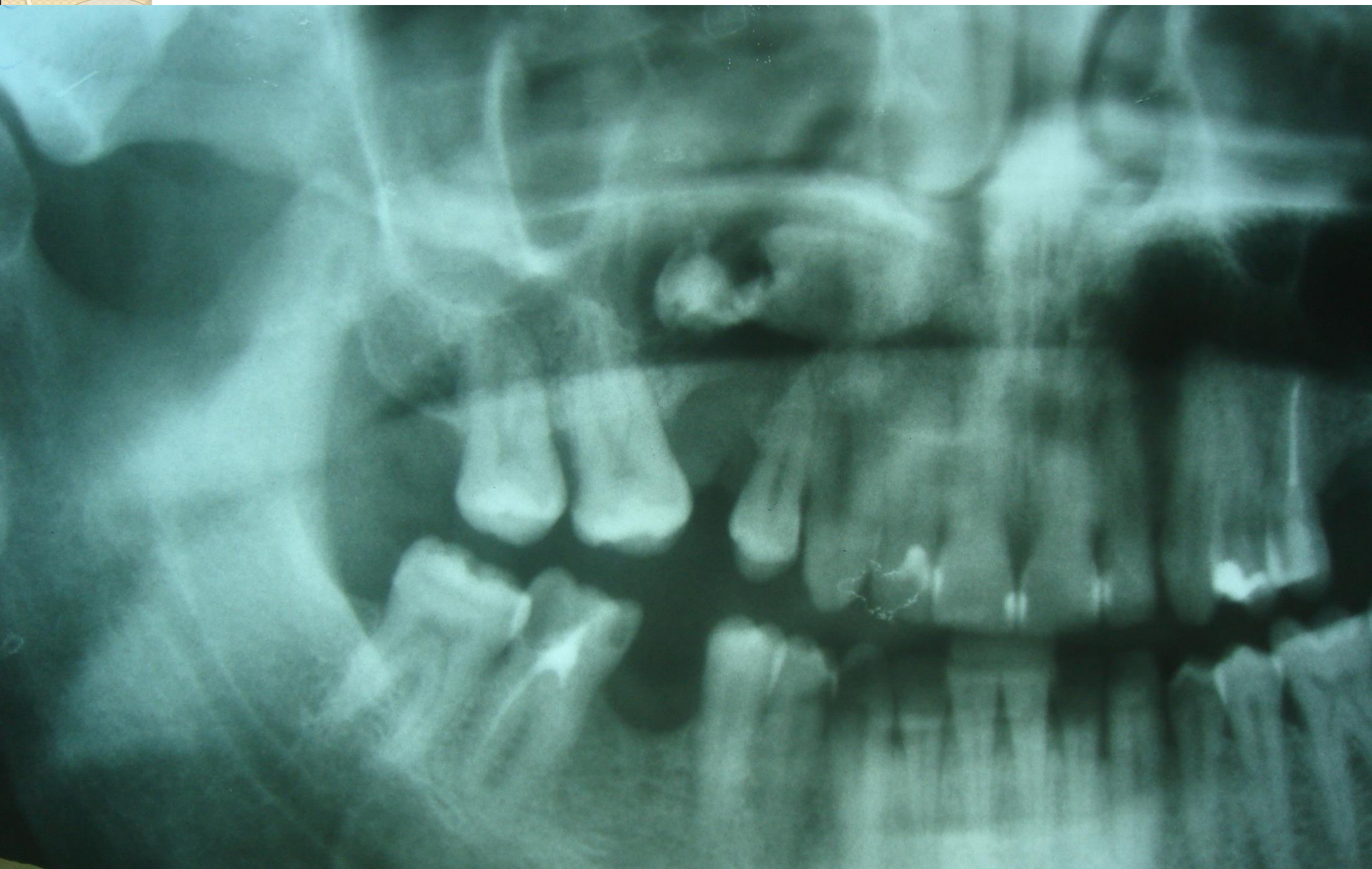


sinusitis due to suppuration of odontogenic cysts which are grown in the maxillary sinus

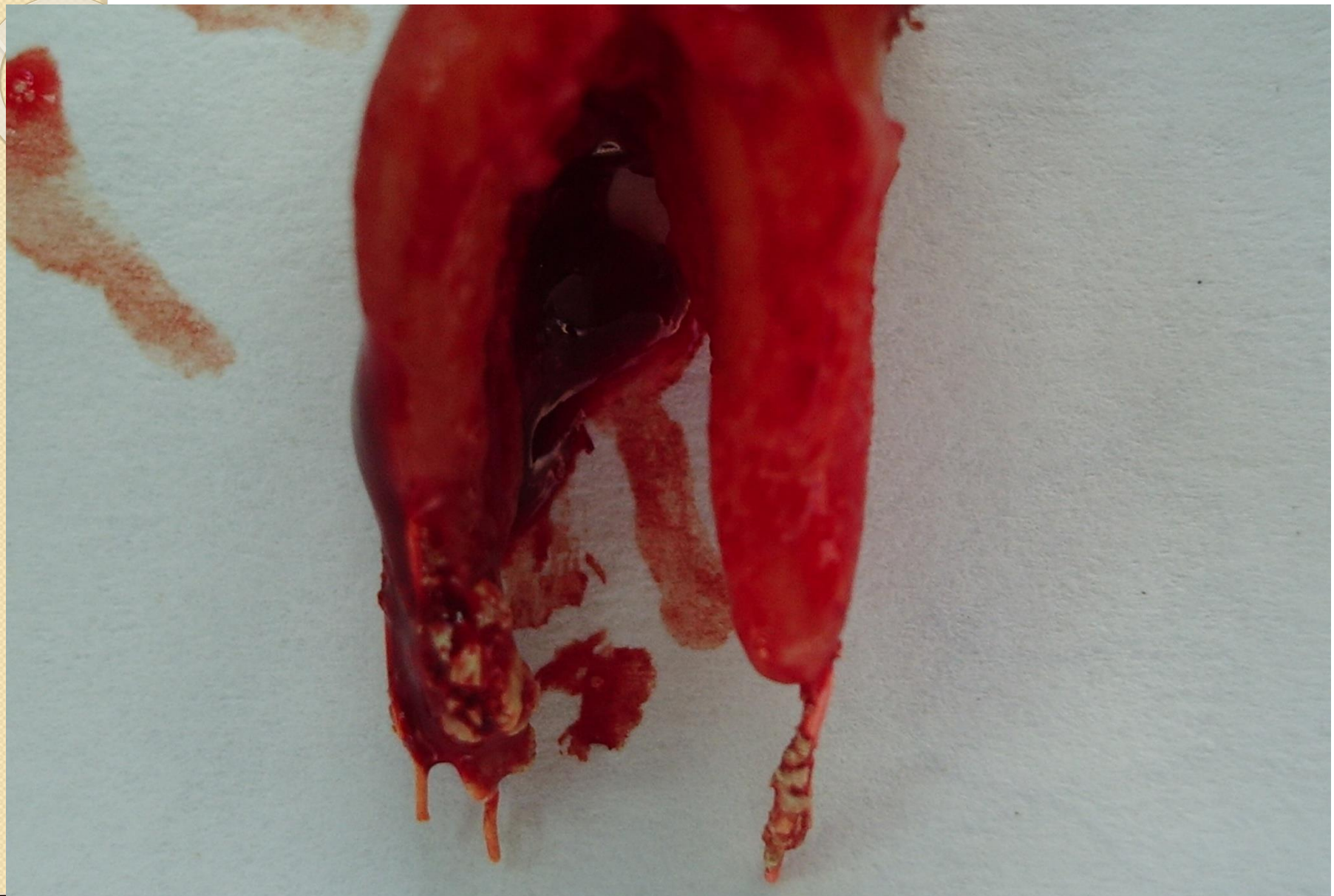


sinusitis due to suppuration of odontogenic cysts which are grown in the maxillary sinus

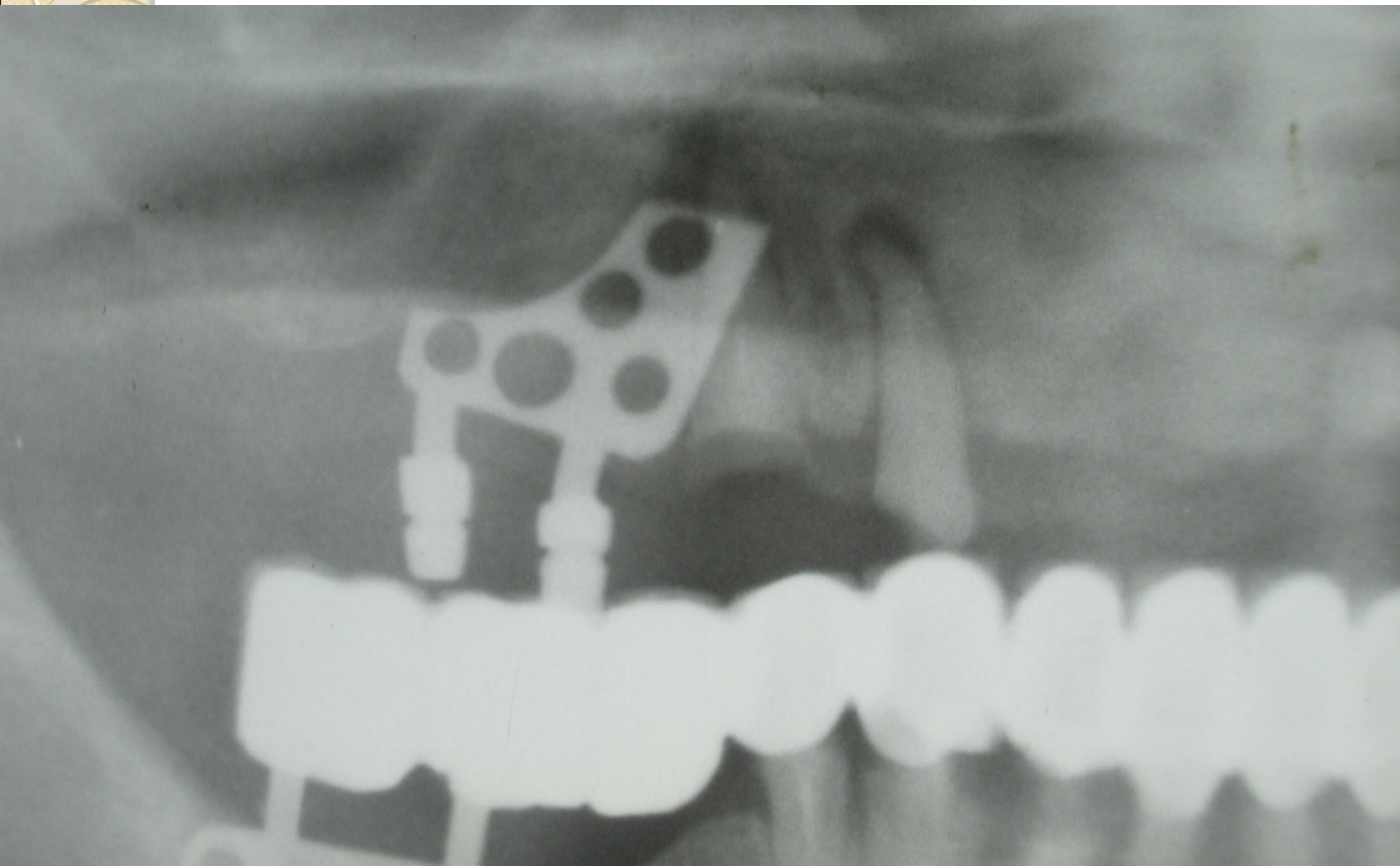




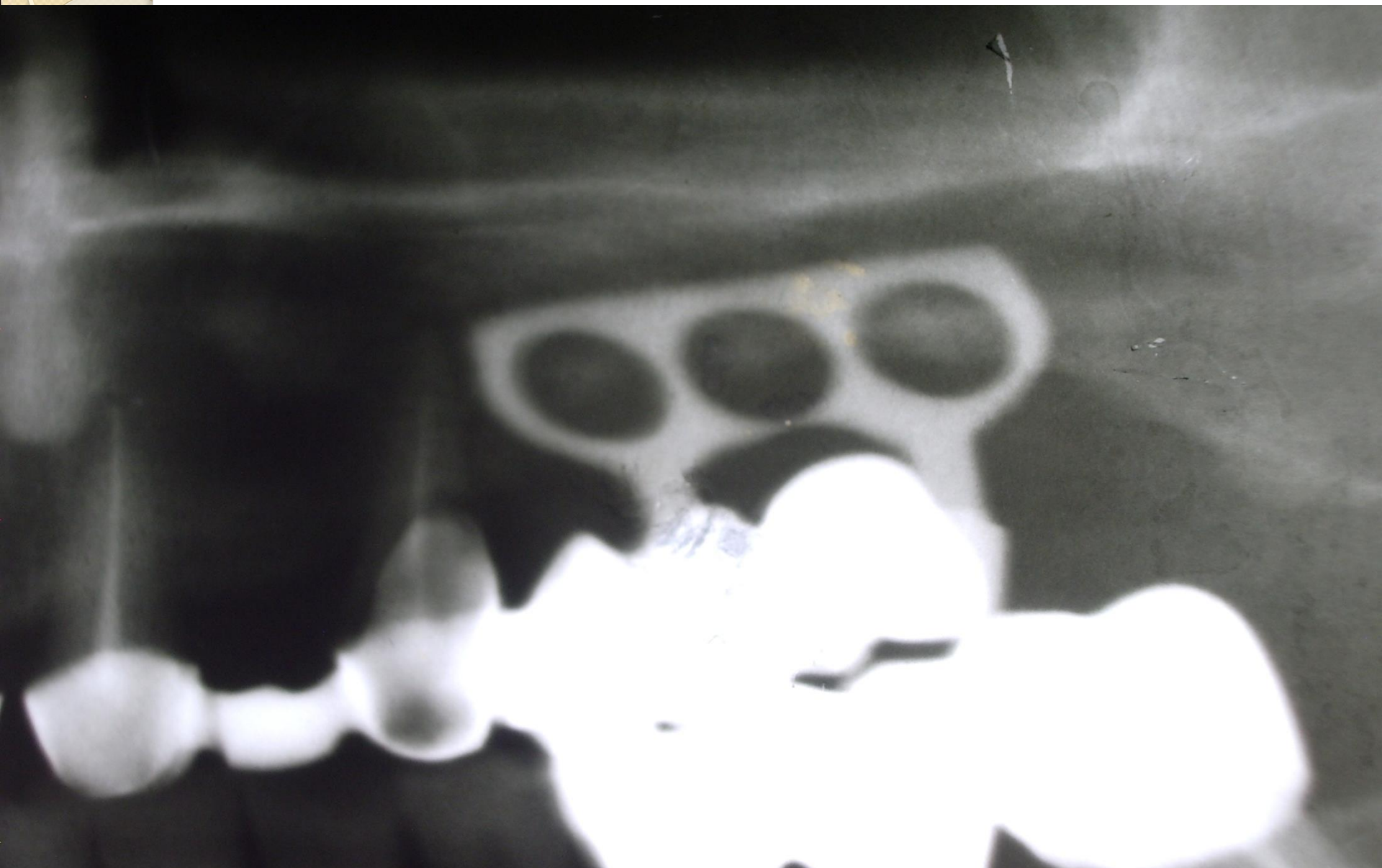
perforated sinusitis



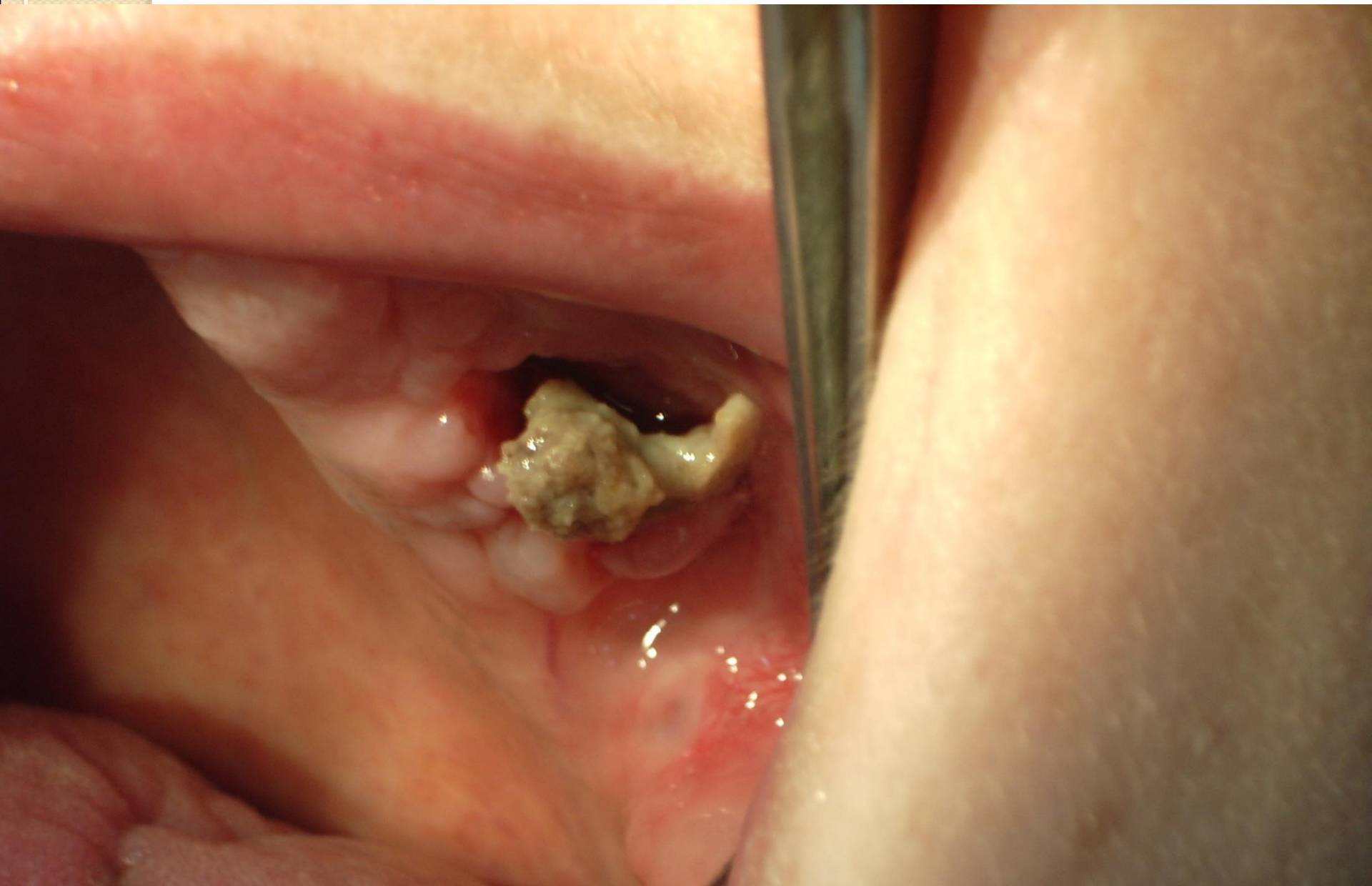
Implant, perforated sinusitis



Implant, perforated sinusitis



sinusitis, developed as aggravation of the chronic osteomyelitis of the alveolar crest or maxilla body



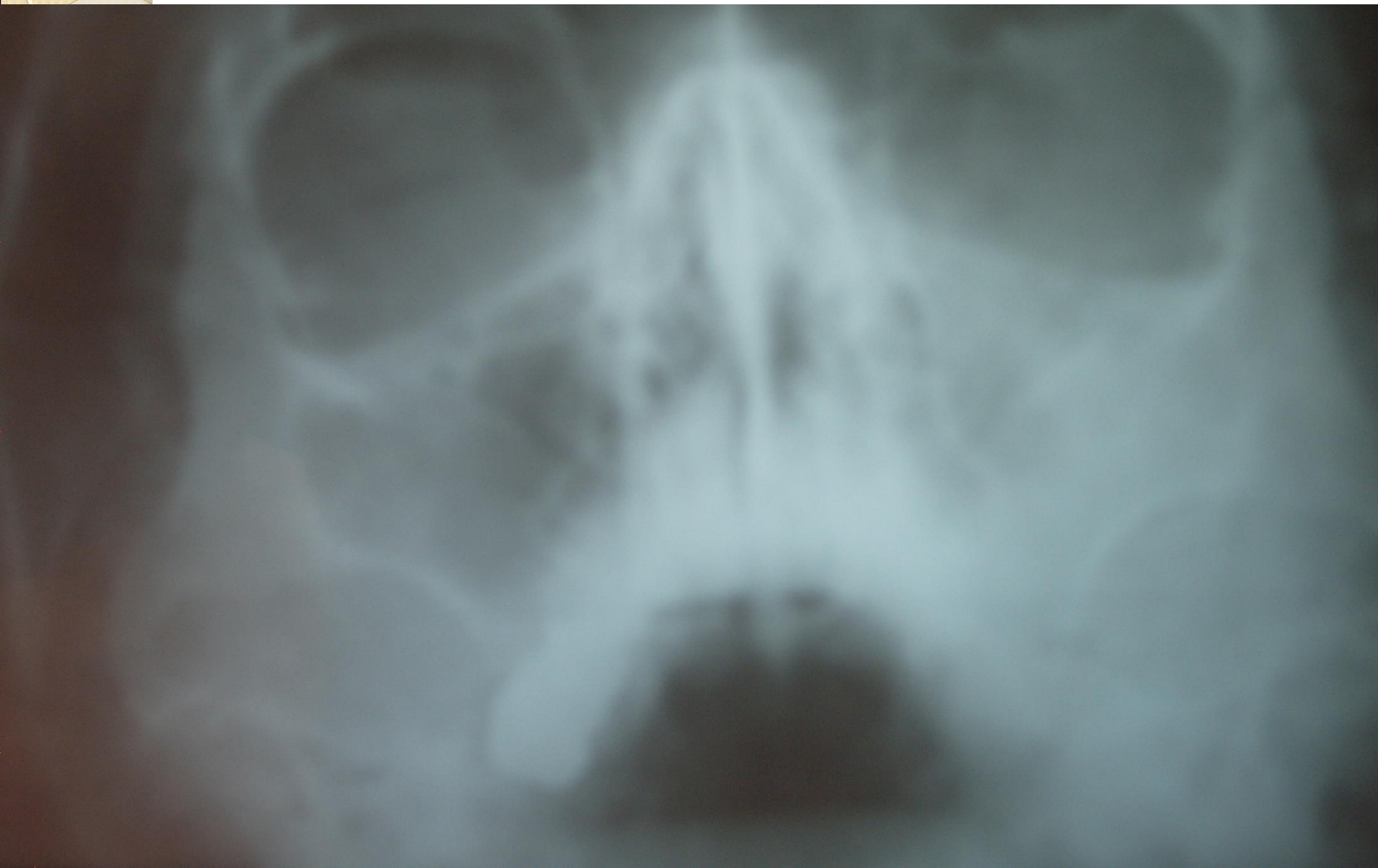
Acute odontogenic sinusitis
Clinical picture

- Acute odontogenic sinusitis appears as the result of acute purulent or aggravated periodont, acute osteomyelitis and cysts suppuration. Quite often is represents the aggravation of the chronic sinusitis.
- During the acute inflammation of the supramaxillary cavity patient complaints are come to the following: pain and heaviness in the corresponding face part; the pain irradiates in frontal, cervical and temporal region and also in the upper teeth, simulating a pulpitis; corresponding nasal parts congestion (blocking) and smell weakness; defluvium of the slim from the naris of the sick part (especially during the forward head bend) and breathing difficulty, general atony, body temperature rising from 37.5 till 39 C°; sleep violation.

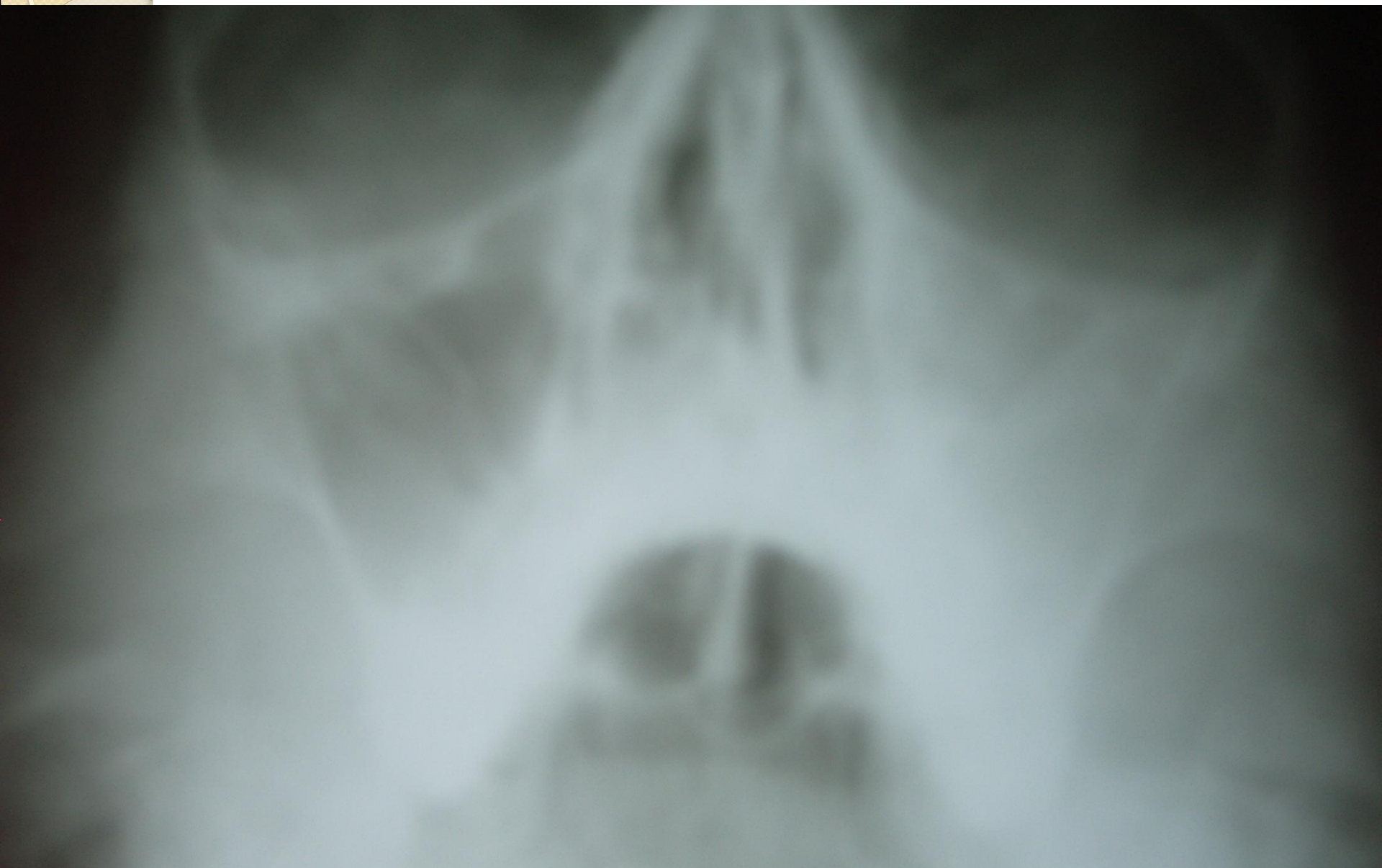
Diagnostics

- Objectively it is observed, painful with slightly lubricous skin during the palpation; the mucosa membrane of the nose cavity is hyperemic and edematous; under the middle concha are present purulent exudates. Percussion on one-three teeth on the sick part causes the pain (one or several from them are gangrenous and disturbed). Percussion along the malar bone causes the pain also. X-ray picture of the cavity: becomes clears sharp shadowing; on the X-ray picture of the alveolar crest are seen the phenomenon of a chronic periodontitis, cystogranuloma or suppurated cyst; the structure of osseous septum is impaired between the focus of inflammation al the tooth apex and floor of the supramaxillary cavity.
- During the centesis of supramaxillary cavity through the lower nasal duct of through the transitory fold of mucosa membrane could be got the purulent exudates, situated in the cavity.
- In the blood – leucocytosis, increase of ESR, number of stab leucocytes.

X-ray picture of the cavity: becomes clears sharp shadowing;



X-ray picture of the cavity: becomes clears sharp shadowing;



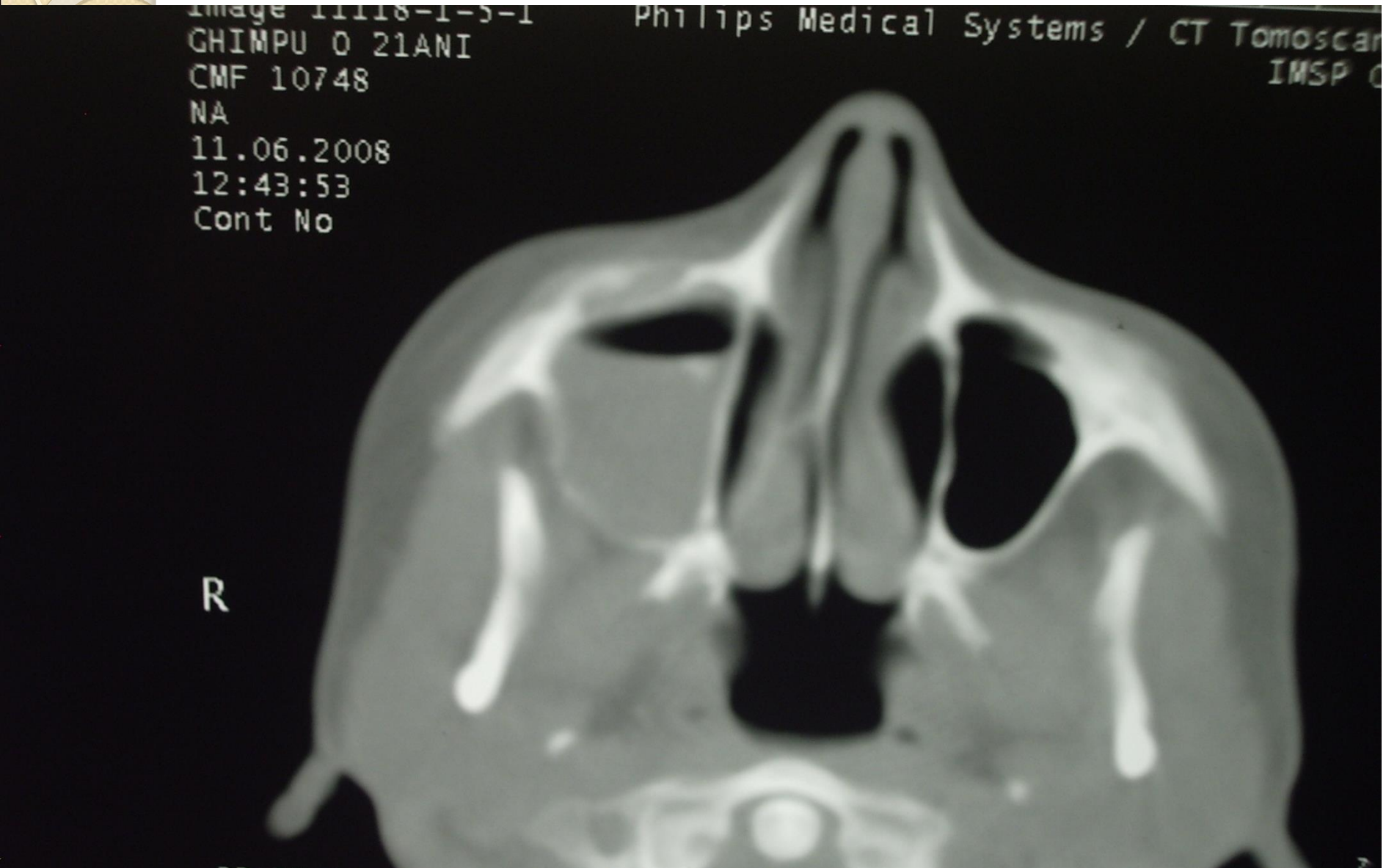
Treatment

- The treatment of the acute odontogenic sinusitis is conservative and pursues aims: to create the free outflow of an exudates from the supramaxillary cavity, to eliminate the tooth focus of infection and to trample the infection in the supramaxillary cavity.
- During the sinusitis take place the sensitization of the patient`s organism, are prescribed desensitizing drugs (intravenously 10% of calcium chloride solution; inside - dimedrol).
- **Preventive measures**
- The preventive measures of the sinusitis consist in timely treatment of teeth diseases, periodontium, maxillary cysts and osteomyelitis.
-

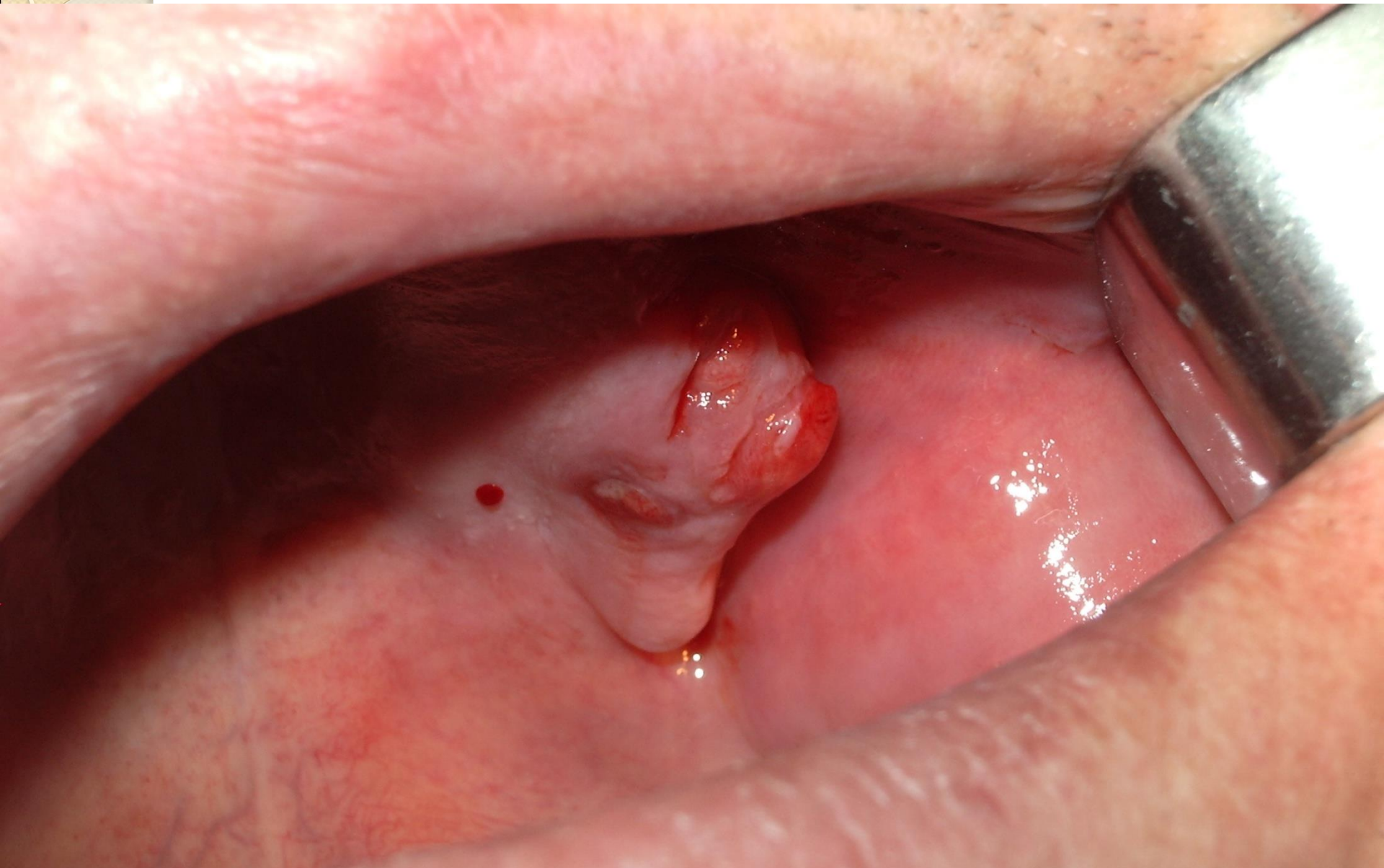
Chronic odontogenic sinusitis
Clinical picture

- Chronic odontogenic sinusitis is developed from the chronic periodontitis or is outcome and aggravation of the acute sinusitis. Complains could be absent, but as a rule patient complain on feeling of heaviness in the head, in the front and temple region, nasal stuffiness, smell violation, lowering of the employability; sometimes is observed putrefactive – malodorous smell from the nose, but during the delay of the exudates outflow from a cavity appears symptoms of acute sinusitis. Objective data: purulent discriminate through ostium maxillarae; mucosa membrane of the nose is edematous and hyperemic sometimes. Chronic sinusitis takes toll on the state of optic nerve on the affection part; from the functional violation are observed: decrement in visual activity within 0.5-3.0 dioptres. On the X-ray picture of the additional nasal cavities the supramaxillary cavity in the sick part is clouded in that degree in what is expressed edema and polypous growth of its mucosa membrane. If in the cavity the purulence is present on the X-ray picture, made in the vertical position of a head, will be observed a distinguished boundary of the liquid level. From the after extraction fistula could appear red granulomatous or grey polypous growth.

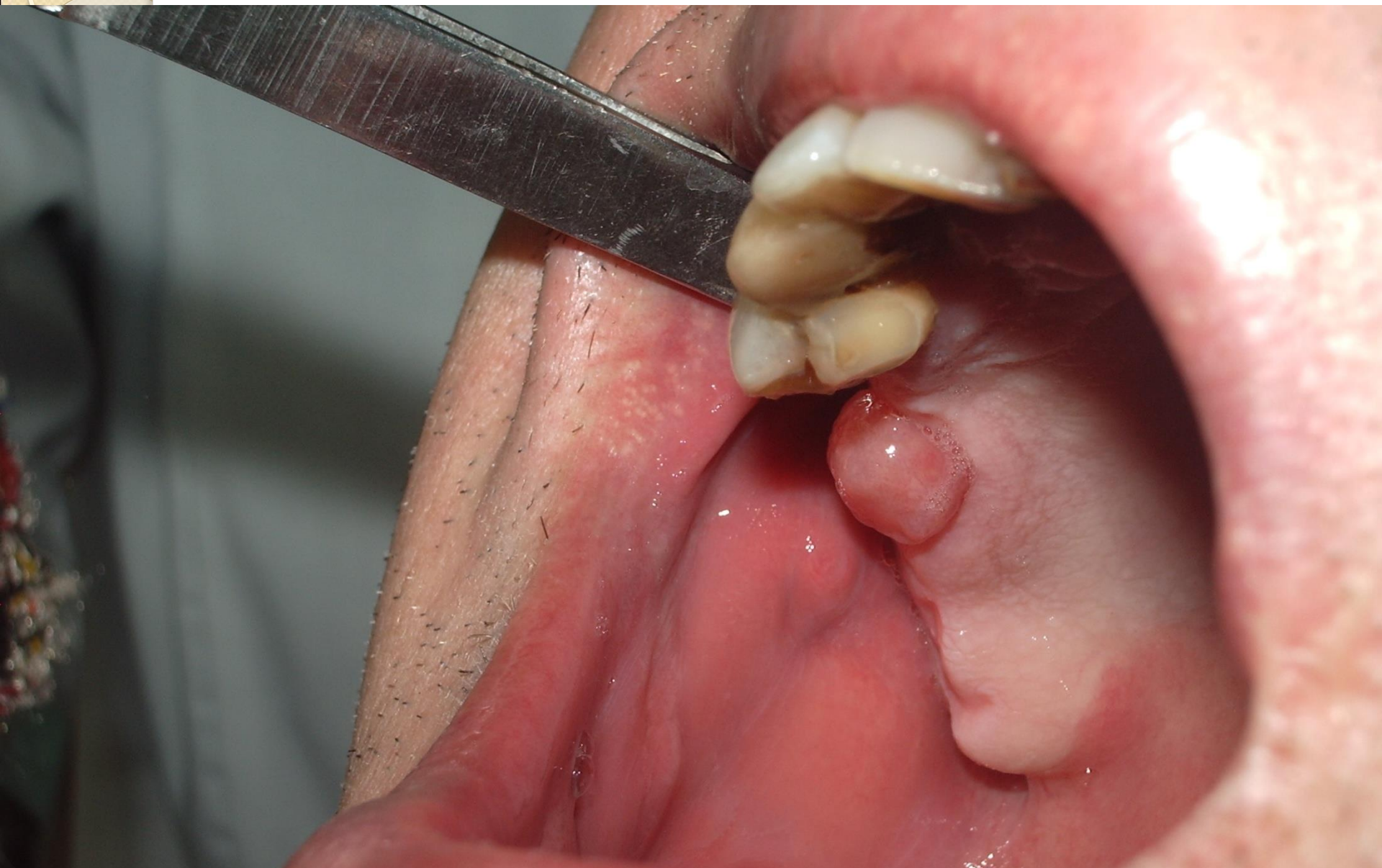
distinguished boundary of the liquid level



after extraction fistula could appear red granulomatous



after extraction fistula could appear red granulomatous



Diagnostics

- Symptoms of the odontogenic sinusitis with perforation of the supramaxillary cavity floor could be in this correlation: headache – at 43.6% patients, pain and feeling of heaviness in the region of upper maxilla – 80.7%, passage of air from the mouth cavity in the nose cavity – at 67.9%, passage of liquid – at 46.1%, defluvium from the fistula after tooth extraction- at 67.1%, defluvium from the nose – at 23.1%, edema of the nose cavity and hypertrophy of concha of cranium – at 33.3%.

Differential diagnosis

- Sometimes occur significant difficulties during the leading of differential diagnostics between rhinogenous and odontogenic sinusitis.
- Chronic odontogenic sinusitis should be differentiated with the *chronic allergic inflammation* of the membrane mucosa of the supramaxillary cavity.
- Odontogenic chronic sinusitis should be differentiated with the *malignant neoplasm* of the membrane mucosa of the supramaxillary cavity.

Treatment

- The treatment of a chronic odontogenic sinusitis persues the following aims:
- To end the following infection of the supramaxillary cavity and eliminate the changed mucosa membrane;
- To end the entry in the organism of inflammation products and microorganism life activity.
- If such treatment will be unsuccessful, the operation is made, the aim of which is elimination of polypous cavity mucosa membrane and creation of a wide inosculation between it and lower nasal duct. Thanks to this is provided free outflow of exudates from the supramaxillary cavity.

- It is necessary to irrigate 5-6 times supramaxillary cavity (through the perforation hole in the tooth fossa) by 6ml of 0.5% Novocain solution, in which are dissolved: any proteolytic ferment (chymopsin, chymotripsin, tripsin in the quantity of 20 mg). The surgical intervention should be used after described preliminary pharmaceutical treatment.
- Anesthesia during the maxillary sinusotomy: palatal, incisival and tuberal regional anesthesia are combined with a plexus-anesthesia through transitory fold.
- *Surgery technique*. Many surgeons use the Kolduel-Lyuk method, in other words open the supramaxillary cavity by the horizontal discission in buccal cavity and trapanize it in the region of canine fossa. For this on the frontal wall are made a range of perforation holes, that in the following are connected among themselves by the help of fissure bur.

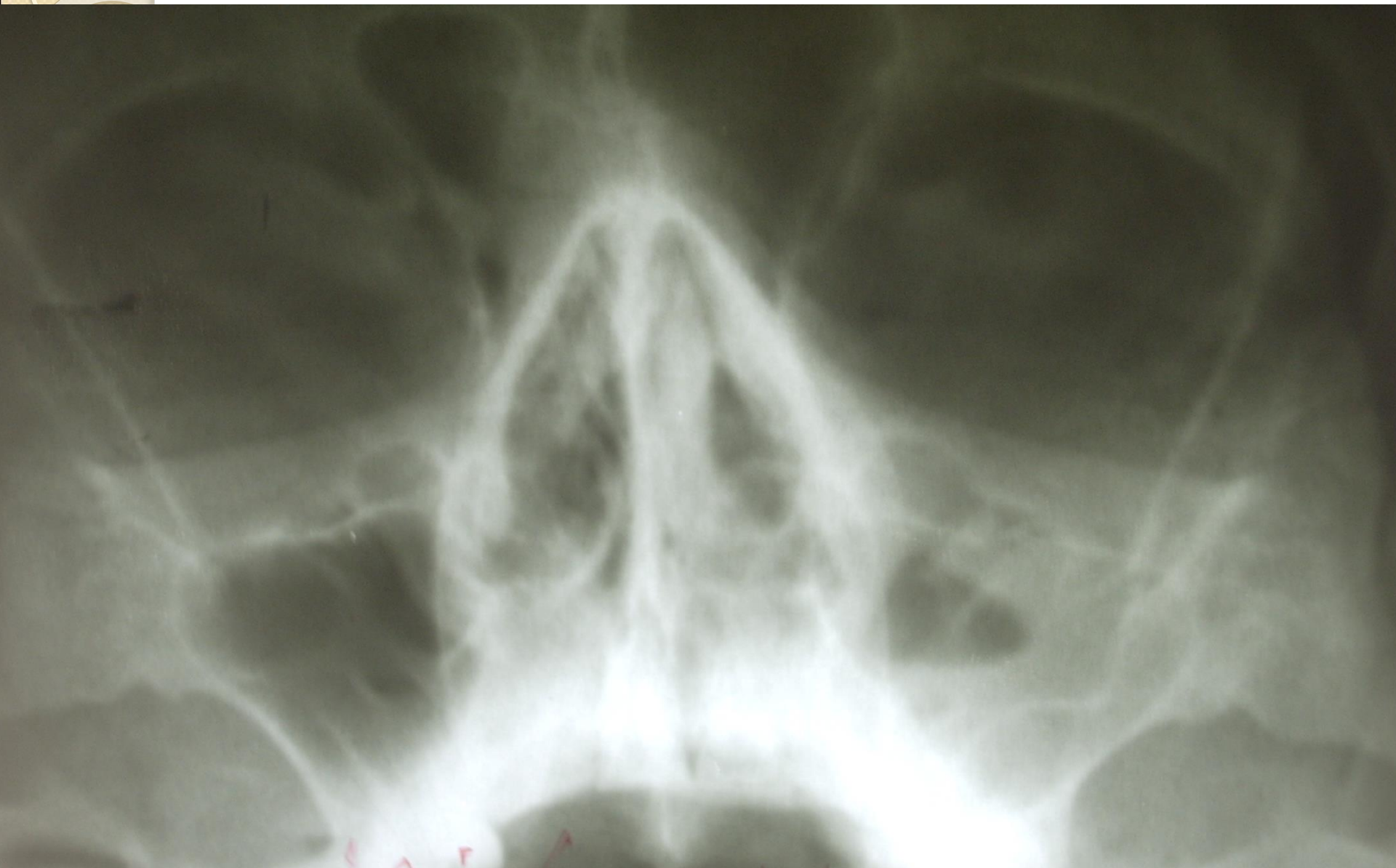
- Main stages of the surgery intervention according to Kolduel-Lyuk are: resection of the anterolateral wall, elimination from the supramaxillary cavity of a purulent, polyps, membrane mucosa and formation of wide inosculation of the cavity with lower nasal duct. The membrane mucosa and periostenium are incised in the mouth anteroom lower transitory fold from the canine to the second molar. It is formed trapezoidal flap according to Vasmund – Neiman-Zaslavsky.
- It is performed the curettage of supramaxillary cavity.

Treatment of the perforated sinusitis

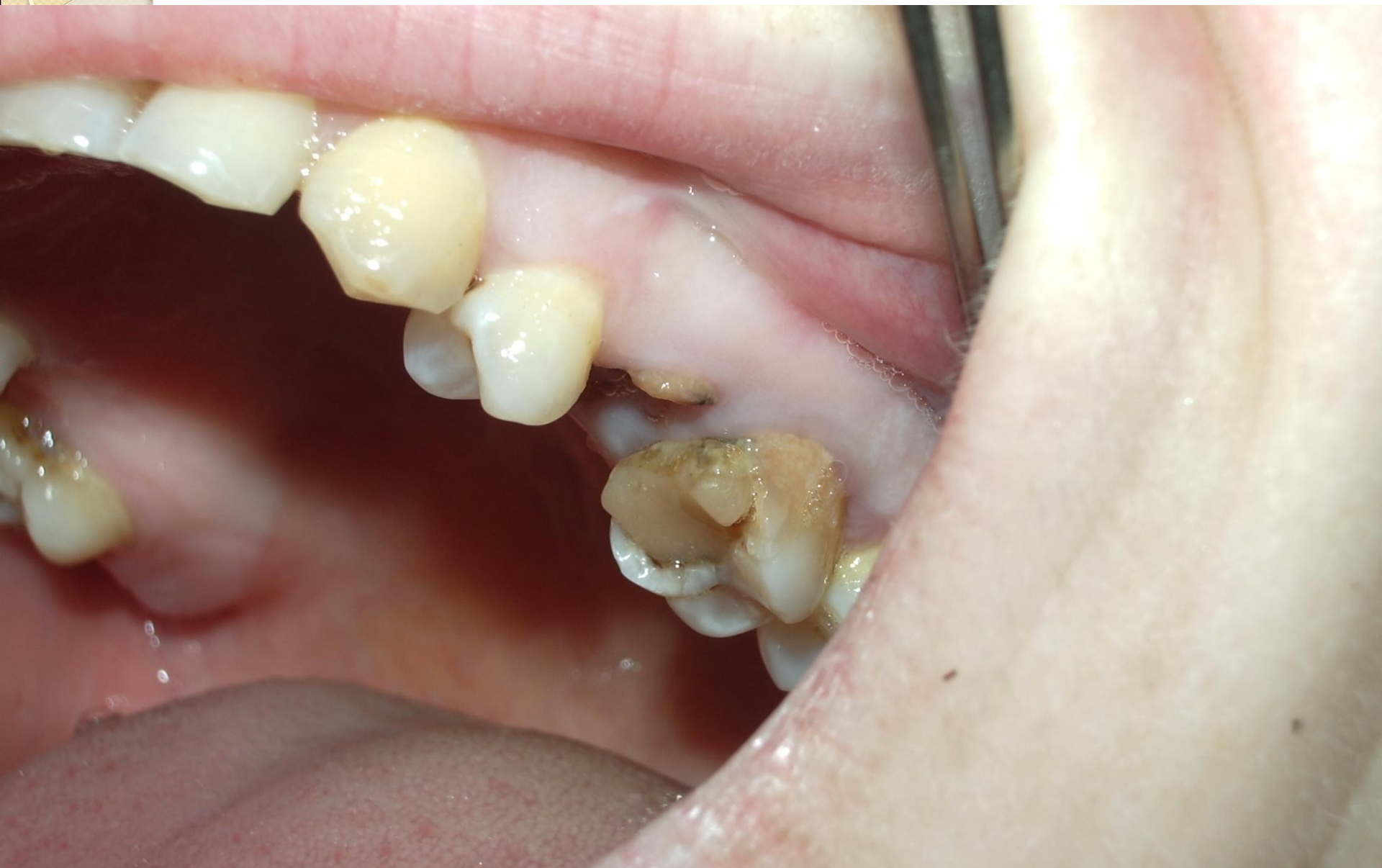
- In some cases can be a self-active closing of perforated hole in the socket of extracted tooth. This can occur in three cases:
- In the case if in the cavity there are no any debride (tooth root) and inflammatory changes;
- In the case of its acute inflammation;
- In the case of aggravation of the chronic sinusitis, but without polypous phenomenon.

- In the second and third cases are necessary ablutions of the supramaxillary cavity (every day, 6-10 days) by the furacilin solution (1:5000) and introduction in the cavity 1.00.00 UN of penicillin in 10 ml 0.5% of Novocain solution.
- More often the opening of the perforated hole is performed by buccogingival, rarer by palatal flap. If the perforated hole is not big is enough to "refresh" its edges, mobilize tissues from the vestibular and palatal parts, and to put interrupted stitches.

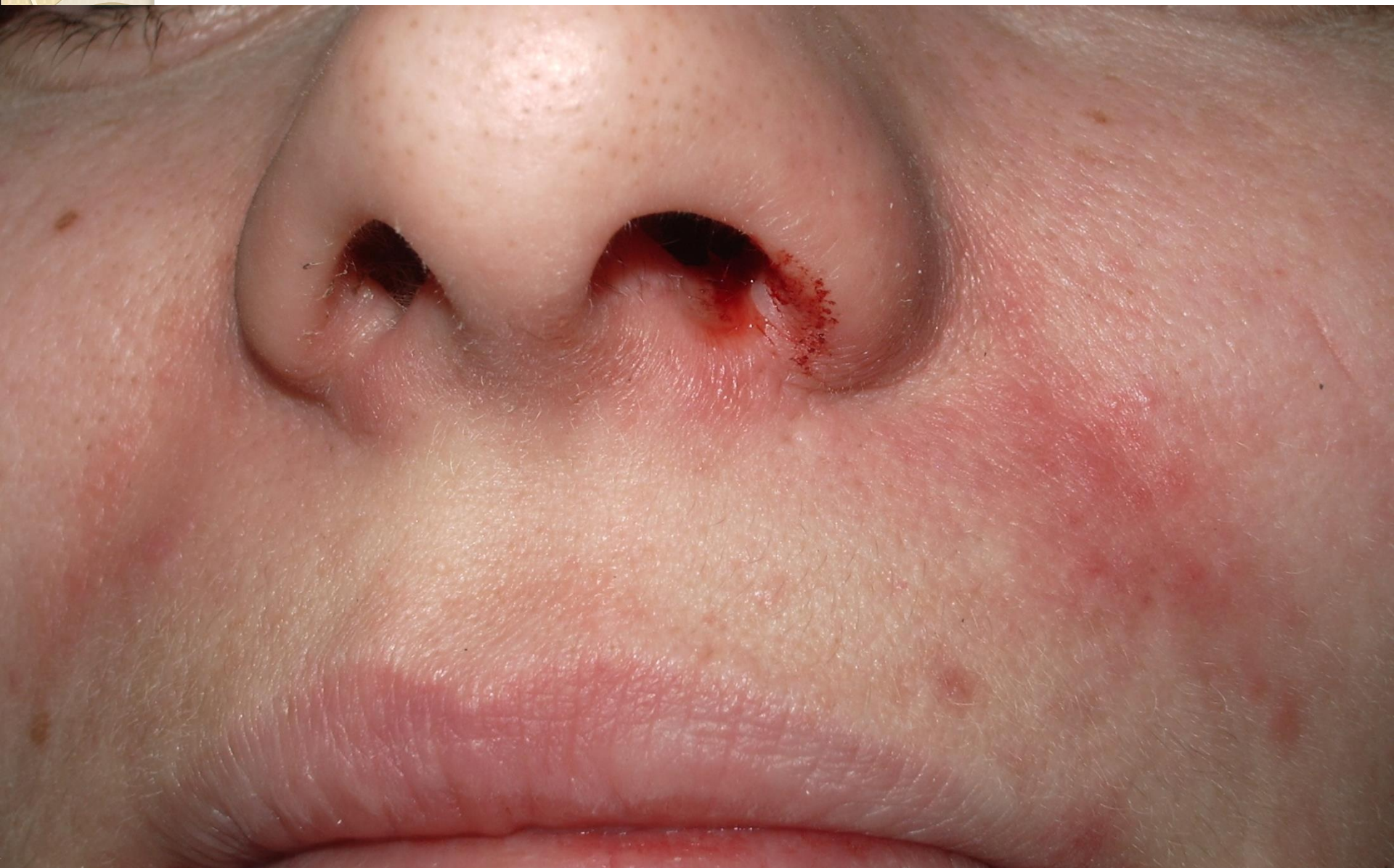
Puncția S.Cr.Ex.O.St. SM st-micșorat în volum, cu mucoasa îngroșată



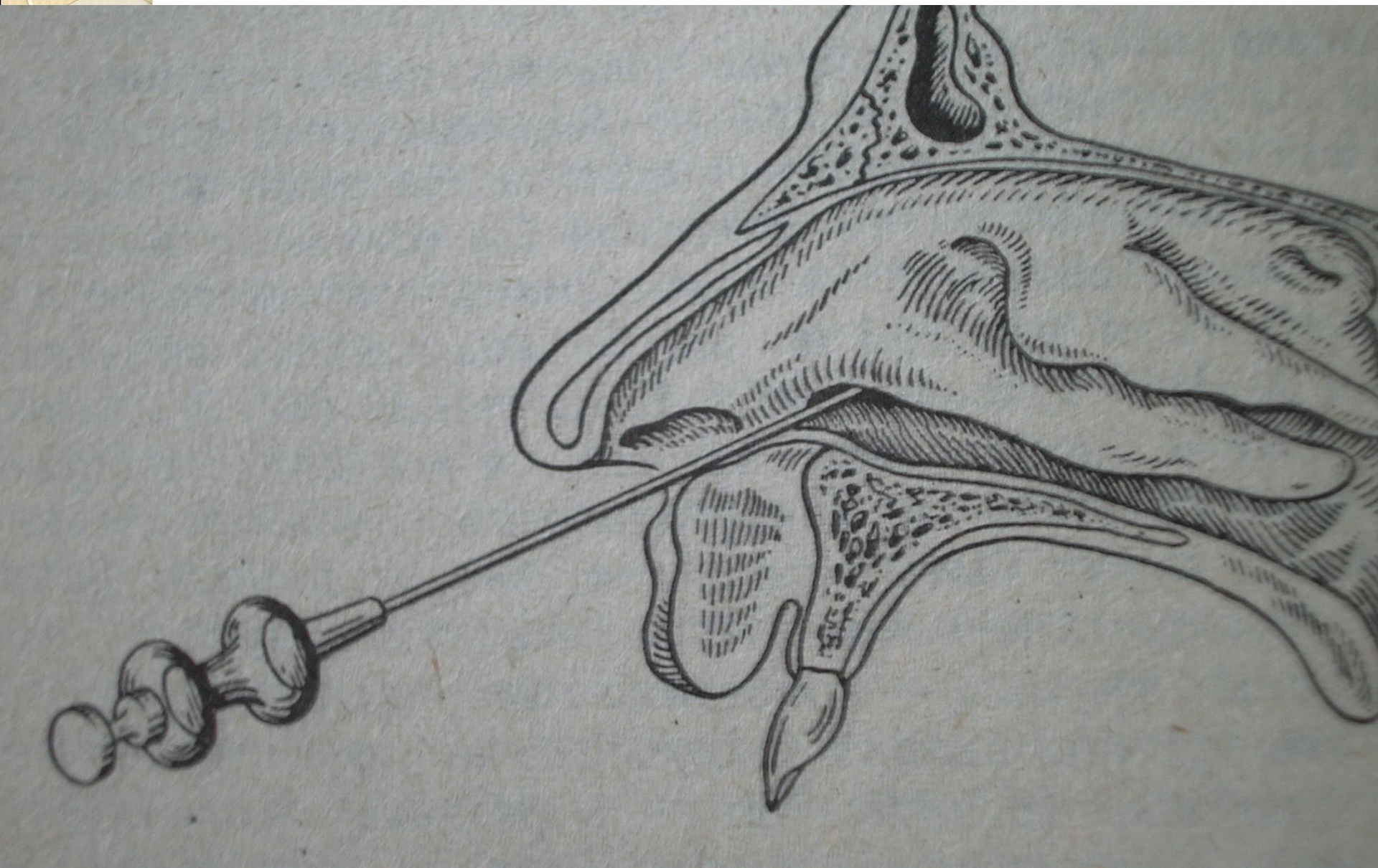
Puncția Etiologia S.Cr.Ex.O.St.-25,26



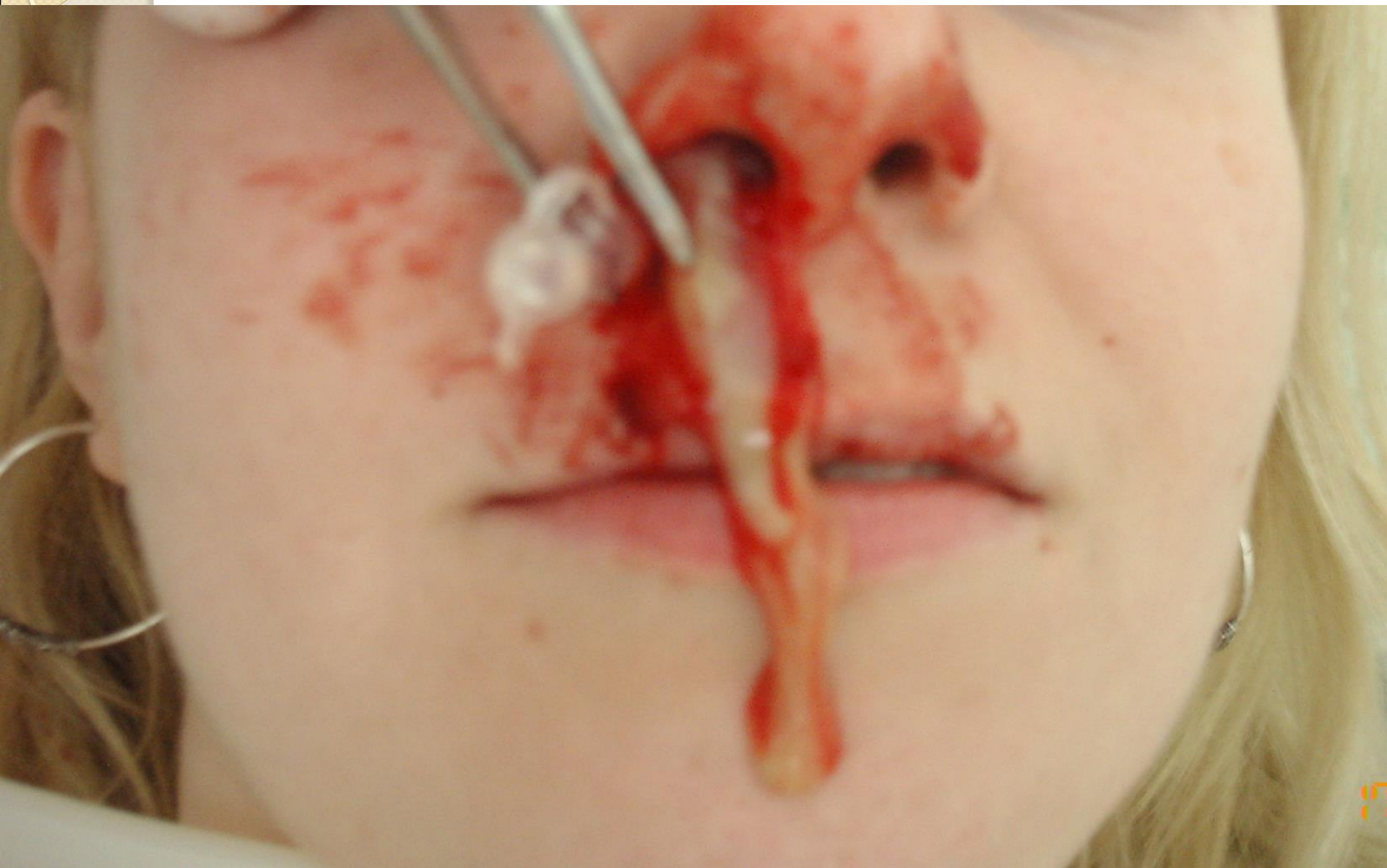
Caz clinic – Puncția cu lavaj zilnic



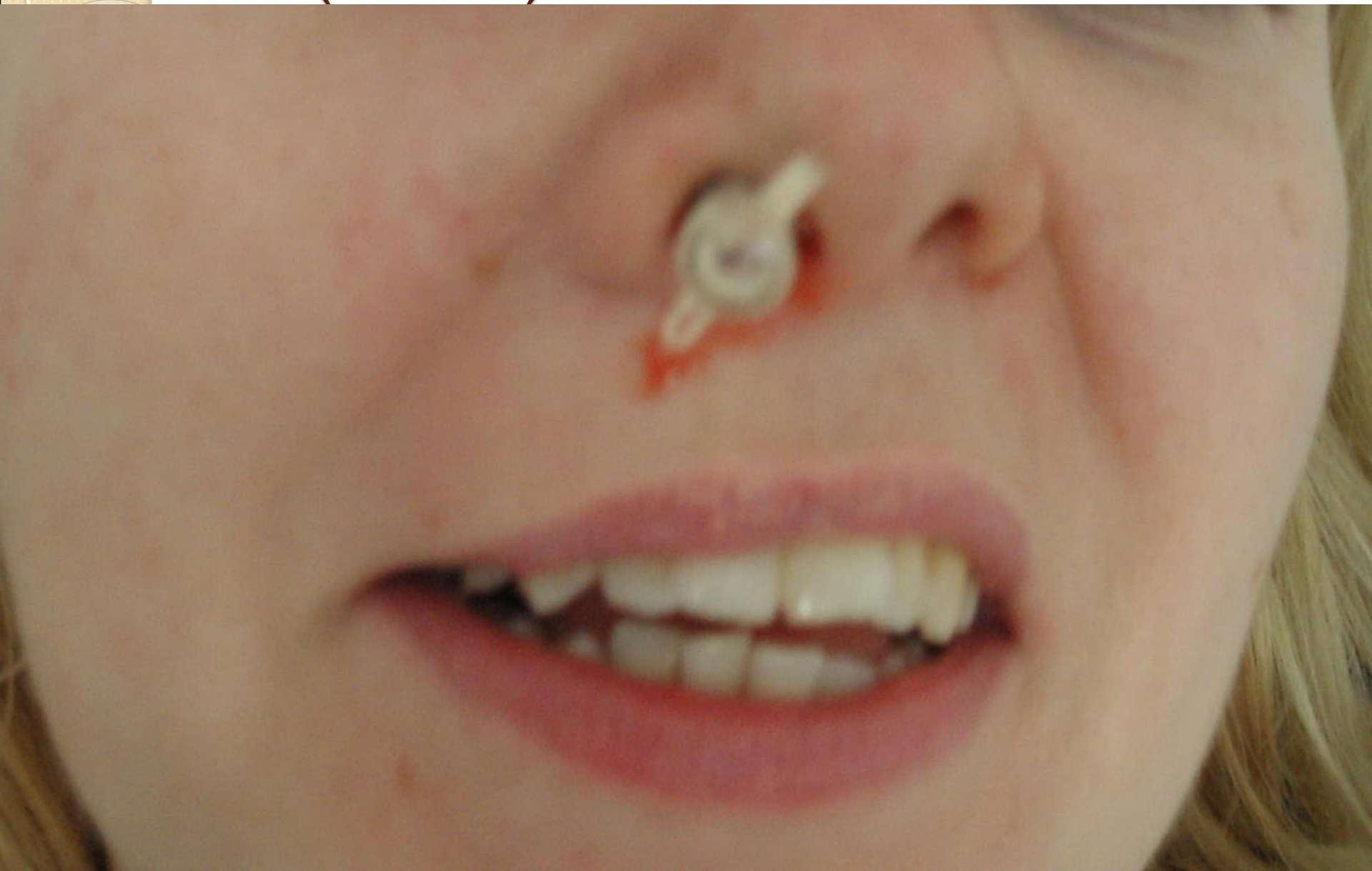
Toracarul Kulicovckii



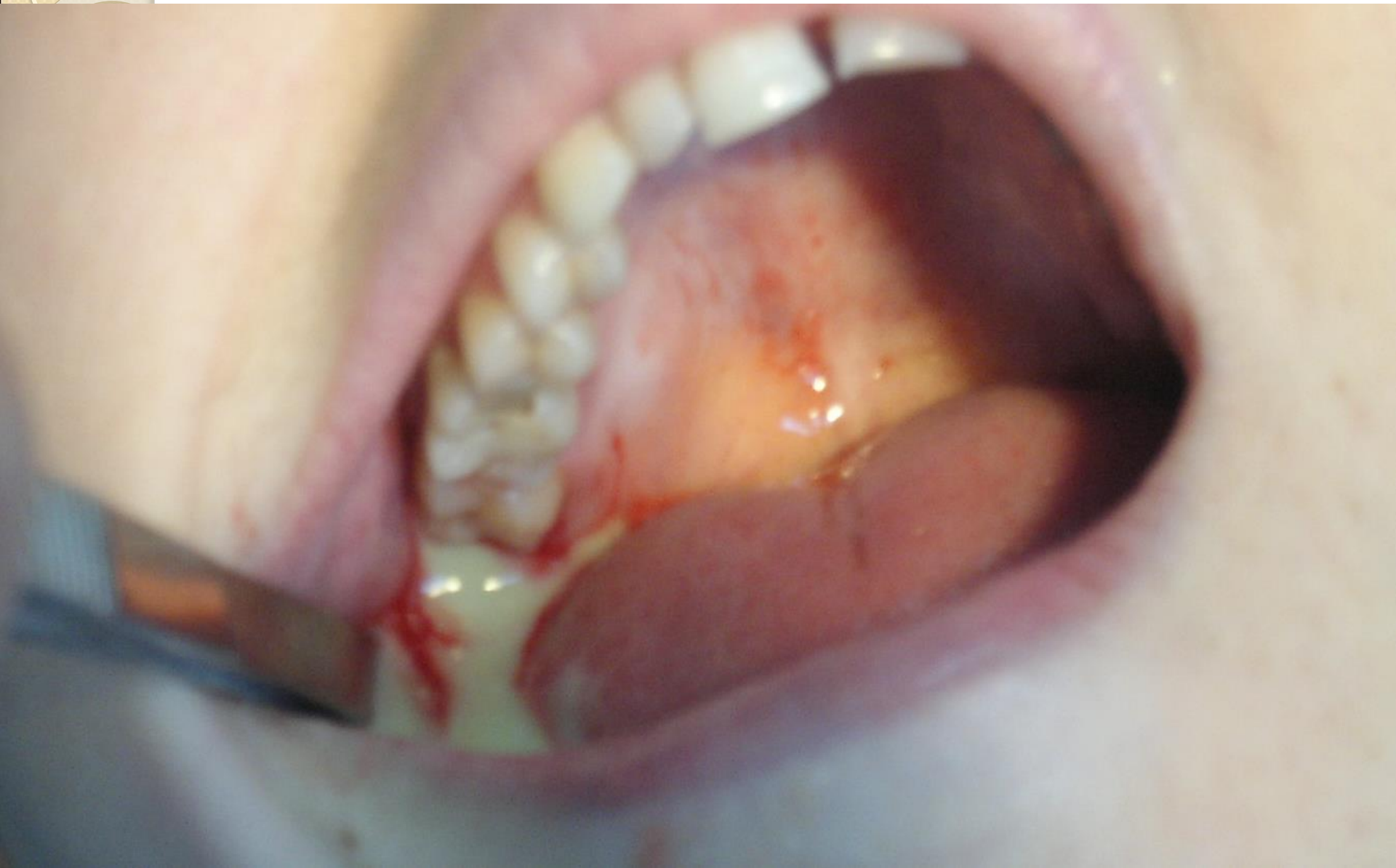
Drenarea SM prin cateterizarea peretelui medial a SM-SAO; SCrOExacerbată.



Cateterul în sinusul maxilar prin nas-Rinostoma(Rino-Sinuso-Stoma)

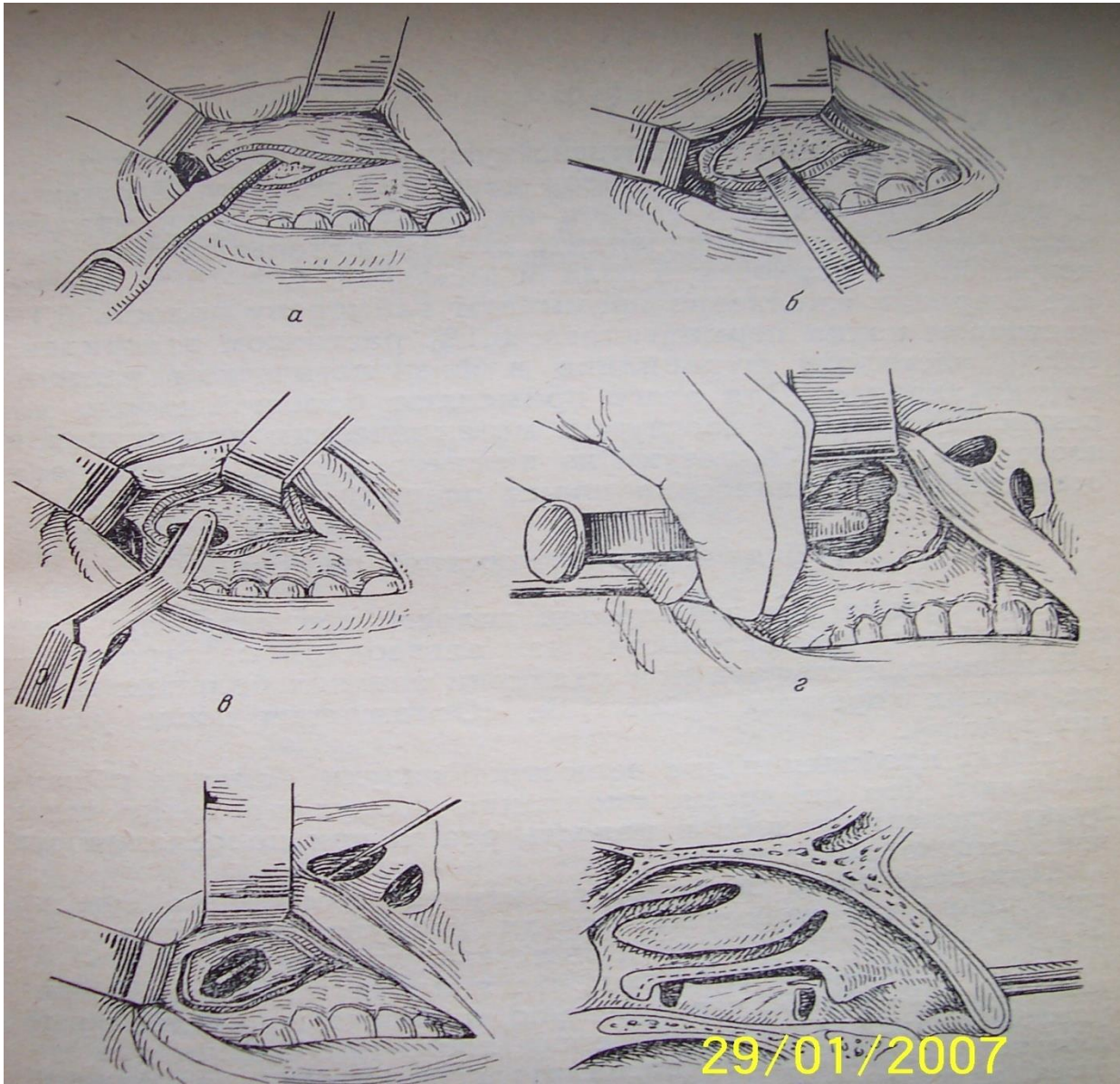


Eliminări purulente din SM dup extr. 18, drenare prin alveolă-SAO-Alveolostoma(Alveolo-Sinuso-Stoma)

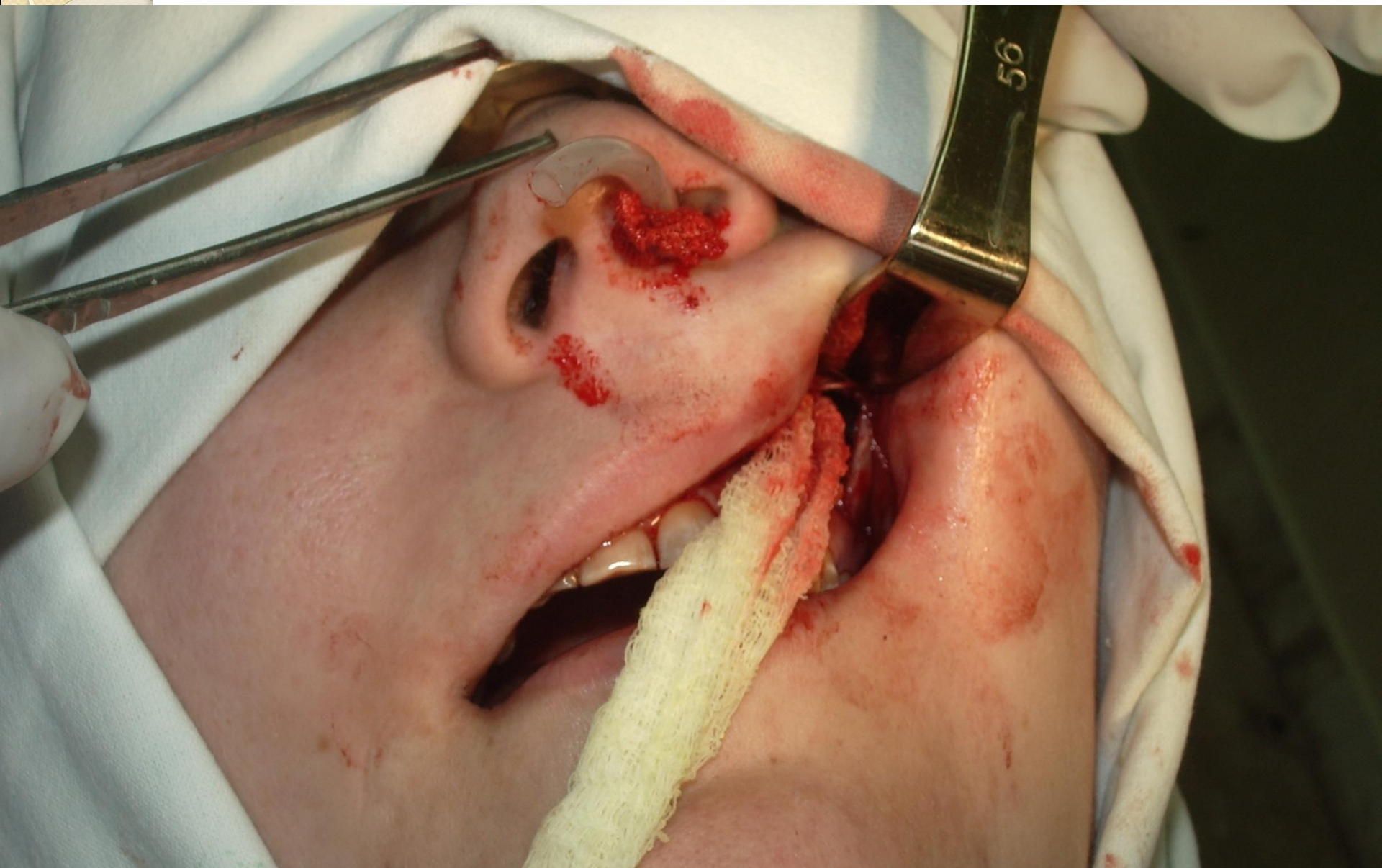


Etapele operației Caldwell-Luck

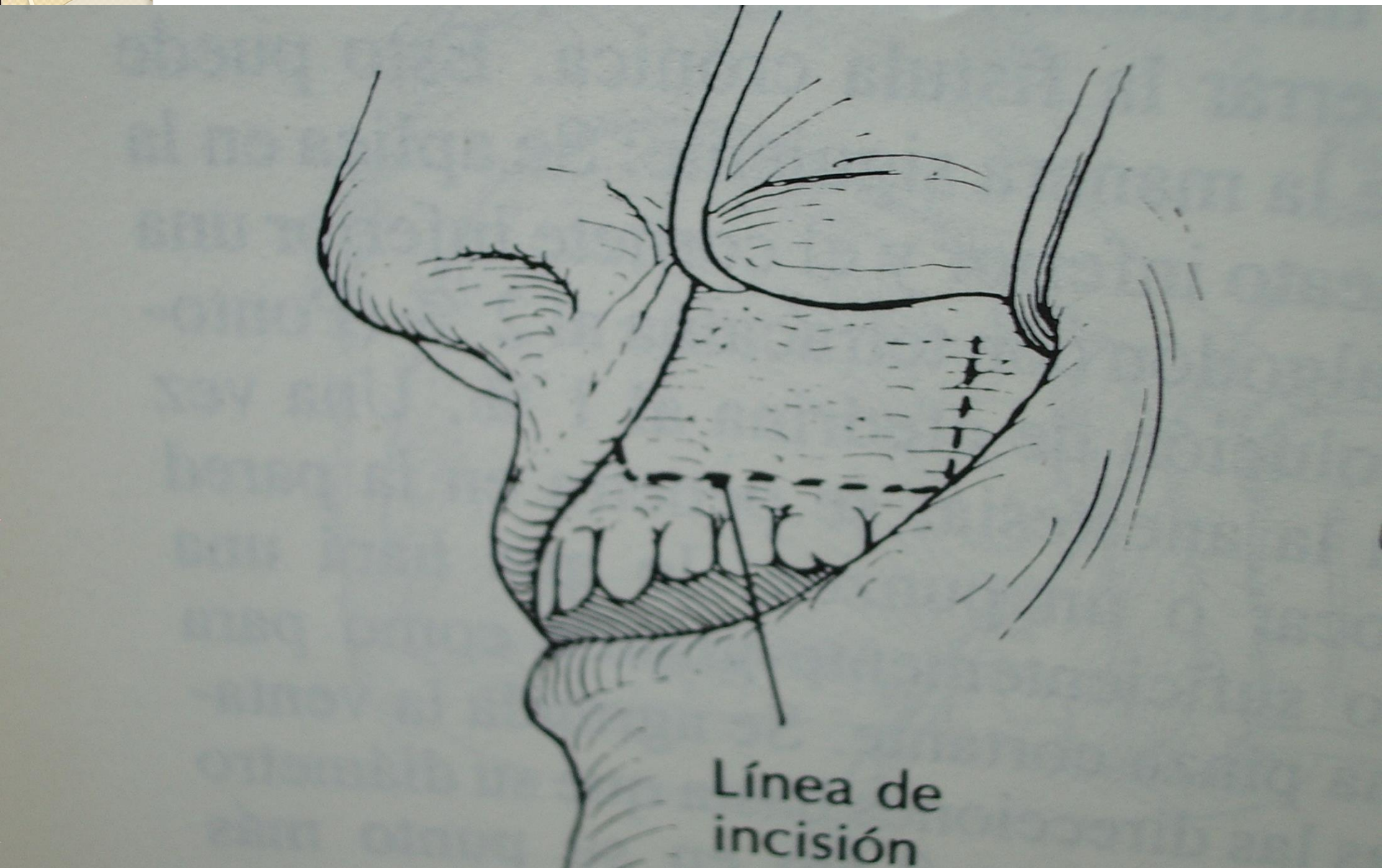
- Incizia
- Trepanarea SM
- Lărgirea SM
- Înlăturăm mucoa
  -sa patologică
- Rinostoma
- Suturarea plăgii



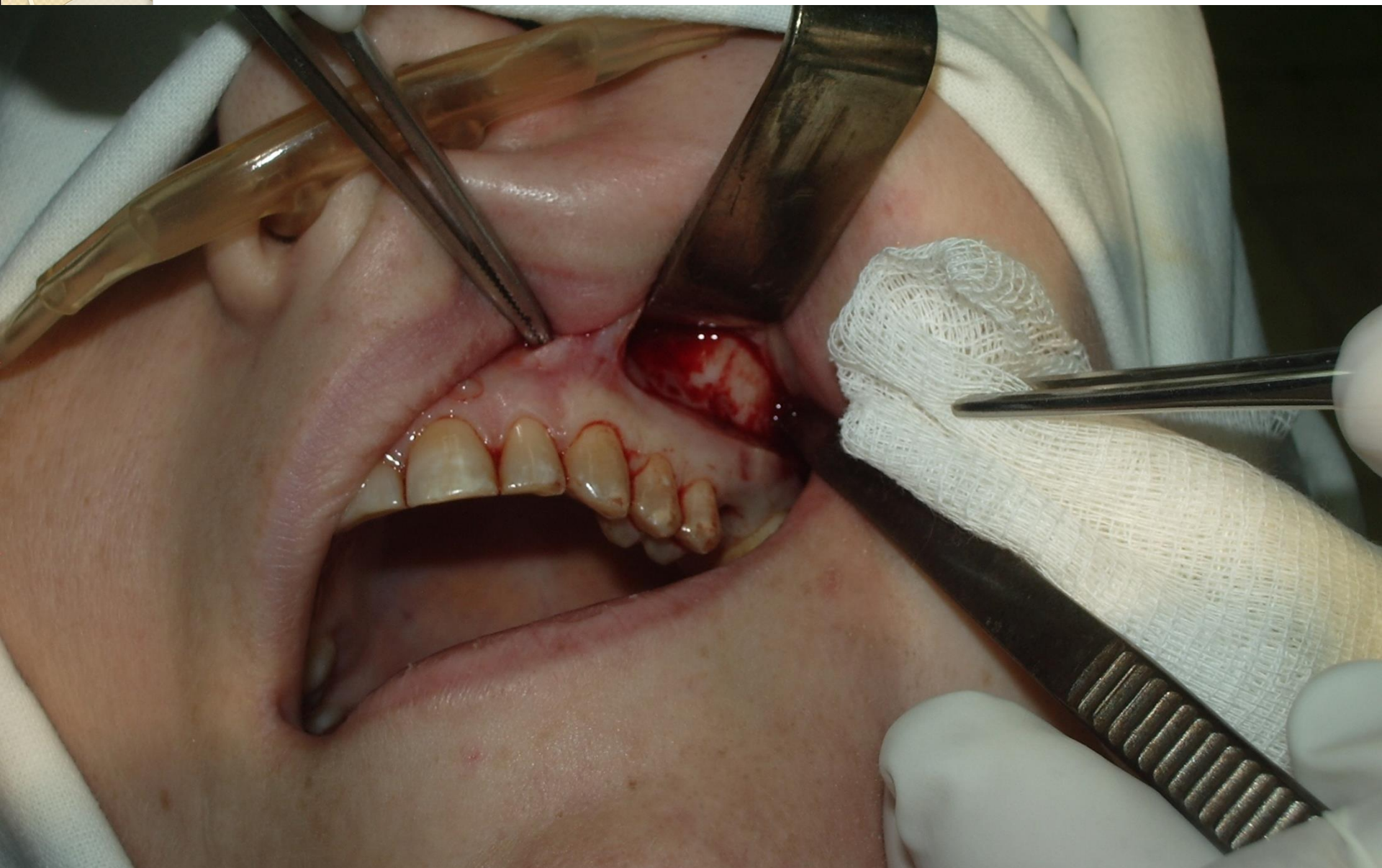
Caz clinic: Rino-sinuso-stoma



Linia de incizie

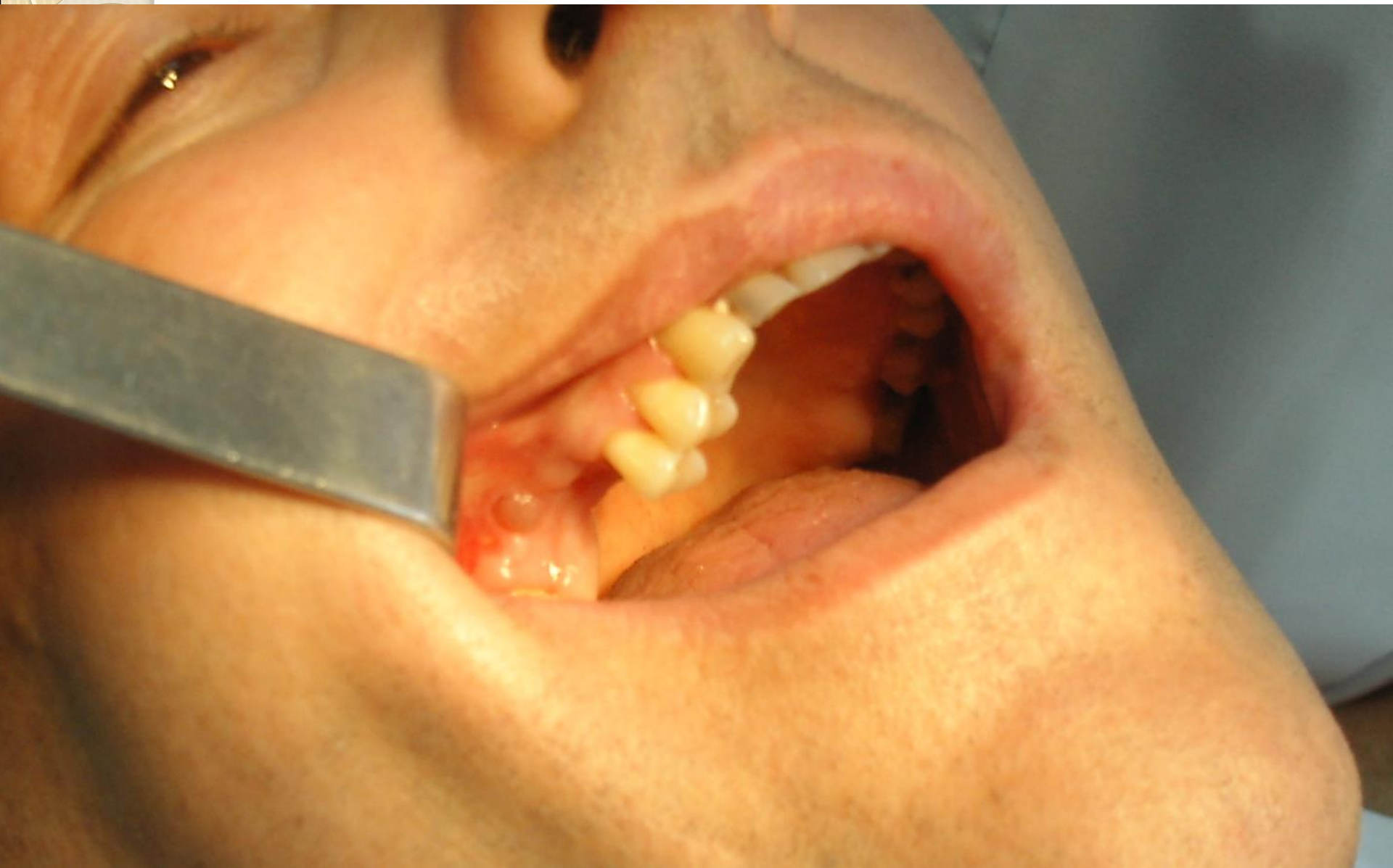


Linia de incizie – caz clinic

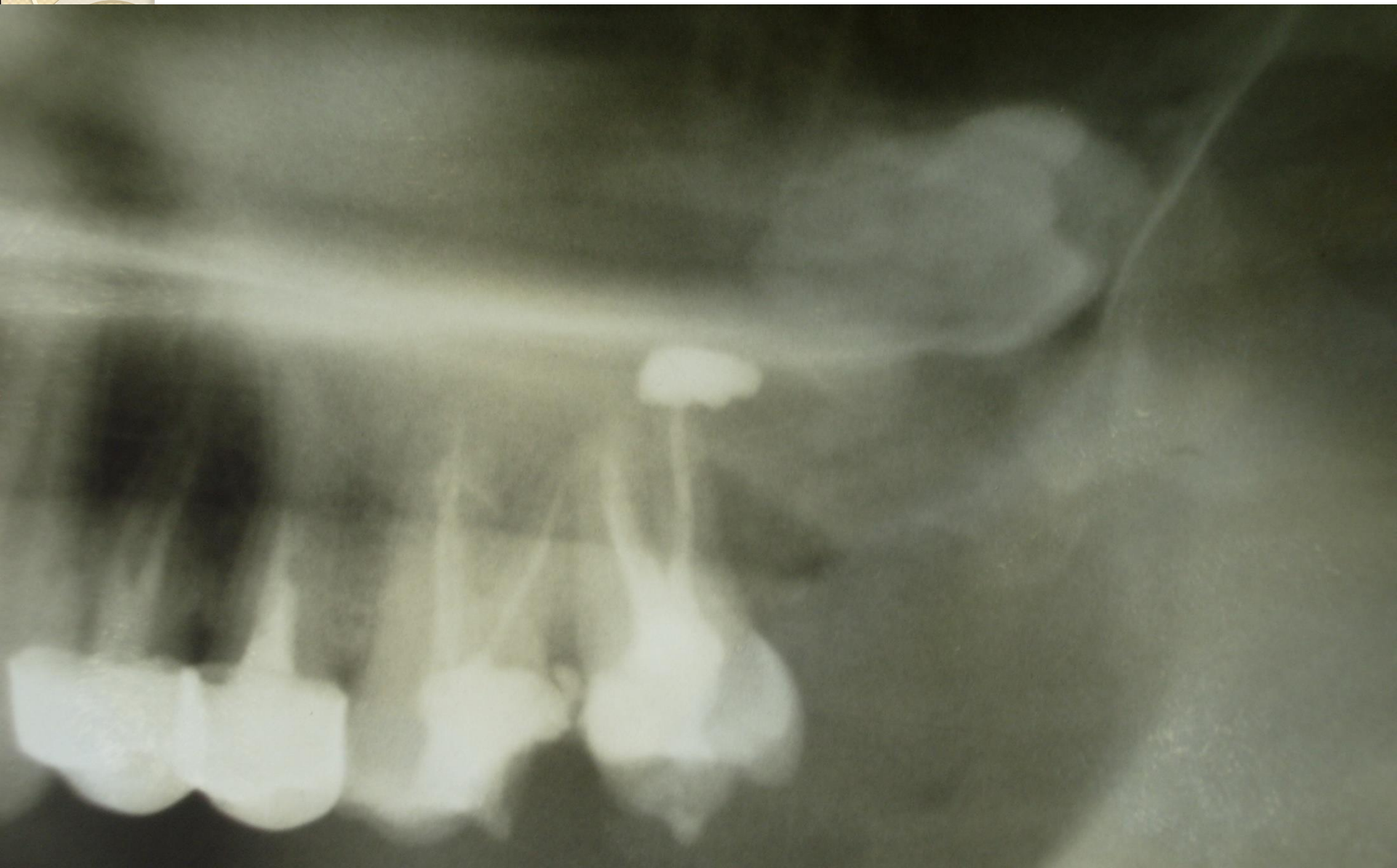


Suturarea plăgii în cazul CL

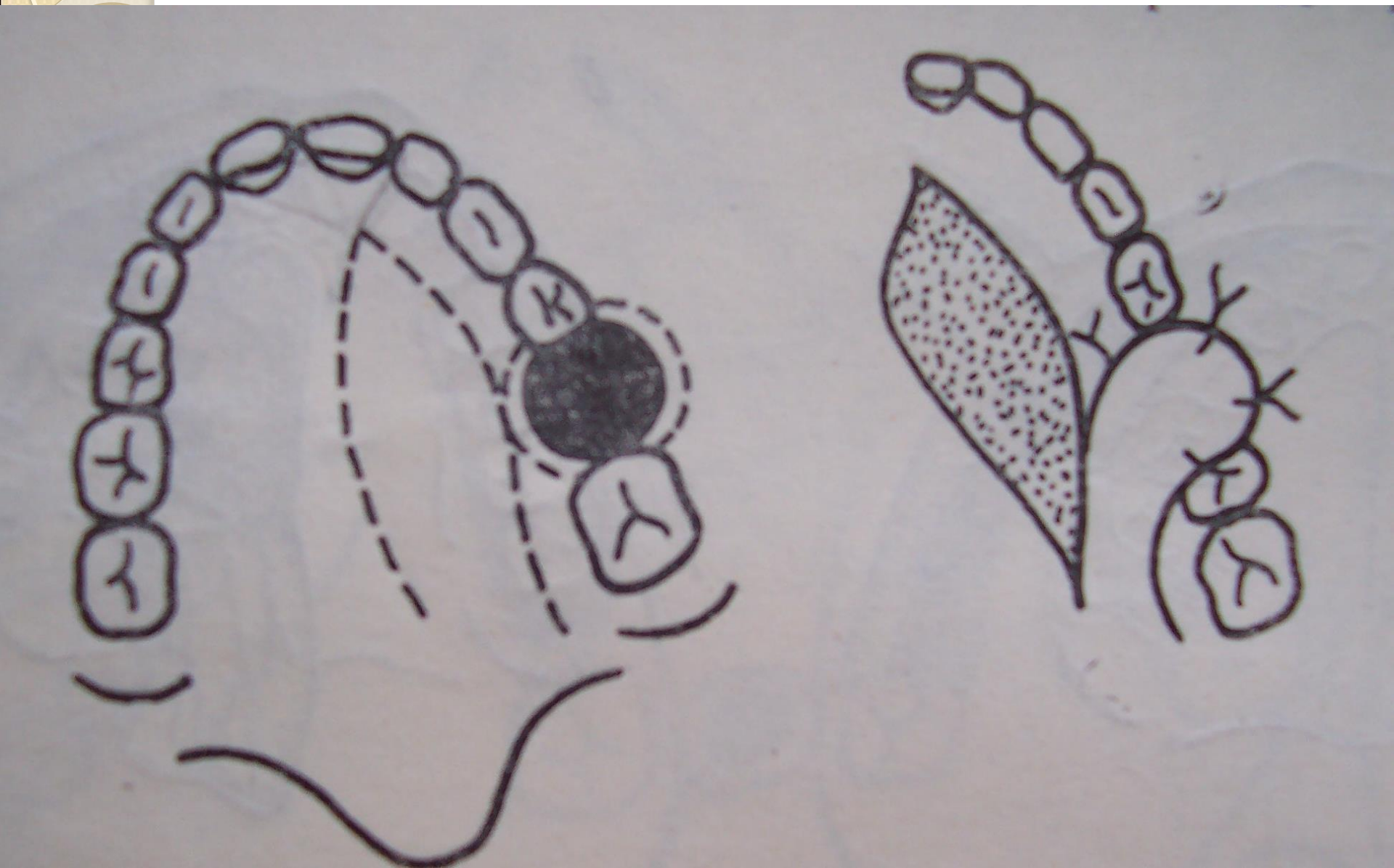
SCP cu polip



Dinte 28 în SM, material de plombare



Plastia COS cu lambou palatinal-ant



Plastia COS cu lambou palatinal-ant