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DIAGNOSTICS OF INDIVIDUAL FORMS OF PURULENT-SEPTICCOMPLICATIONS OF CONCLUSIONAL VIN CATHETERIZATION

abstract:Purulent-septic complications are difficult to diagnose complications of subclavian vein catheterization. They occur, as a rule, with progressive use of the catheter in extremely debilitated patients, in patients with active foci of highly invasive infection, with a decrease in immunoresistance to opportunistic infections, a violation of the rules for installing a catheter and caring for it, infusion of bacterially contaminated fluids.

***key words*:** purulent-septic complications, catheterization of the subclavian vein, diagnosis, cavacatheterization, infiltration, phlegmon.

Information about the clinical manifestations, diagnosis and treatment of purulent-septic complications of catheterization of the subclavian vein is unambiguous. Some authors believe that to verify the diagnosis and treat patients, it is sufficient to use the usual means and methods used in surgery, while others believe that these complications require the use of special techniques that allow you to quickly and effectively identify and eliminate the developed complications of cavacatheterization [1,2,3].

Diagnosis of purulent-septic complications of subclavian vein catheterization in our work was based on an assessment of complaints, clinical features, data from physical examination methods, laboratory data, results of central venous pressure measurement, ultrasound examination of the subclavian and internal jugular veins, microbiological examination of blood, catheter and discharge from purulent foci. Among 215 examined patients, purulent-septic complications of cavacatheterization were detected in 53 patients.

Common signs for all forms of purulent-septic complications of subclavian vein catheterization were: increased heart rate and respiratory rate, fever, leukocytosis, worsening of the patient's condition up to the development of multiple organ failure, etc.

The main local clinical signs of purulent-septic complications of cavacatheterization, identified during physical examination, we attributed:

- pain, flushing of the skin, swelling of soft tissues in the subclavian region;
- infiltrate at the puncture site of the subclavian vein;
- pain, skin flushing, swelling and infiltrate in the area of the lateral surface of the neck and along the neurovascular bundle (in the projection of the sternocleidomastoid muscle);
- expansion of the saphenous veins in the shoulder, upper chest and side of the neck on the side of the lesion;
- edema and cyanosis of the upper limb;

Based on the data obtained, we identified 6 forms of purulent-septic complications of subclavian vein catheterization:

1) soft tissue infiltration of the subclavian region around the catheter;
2) phlegmon of soft tissues of the subclavian region around the catheter;
3) phlebitis of the subclavian vein and its tributaries without thrombosis;
4) thrombophlebitis of the subclavian vein with incomplete occlusion of the vessel;
5) thrombophlebitis of the subclavian vein with complete occlusion of the lumen of the vein;

6) thrombophlebitis of the internal jugular vein with the development of neck phlegmon;

The results of the study of clinical manifestations of individual forms of purulent-septic complications of subclavian vein catheterization, the features of their diagnosis and treatment are given below.

Differential diagnostic signs of phlegmon infiltrate of the subclavian region

Infiltration of the subclavian region at the site of the subclavian catheter developed in 10 patients: 7 women and 3 men aged 22 to 71 years, the average age was 53.2±4.9 years. All patients were catheterized right subclavian vein. The duration of the catheter in the vein ranged from 3 to 14 days, on average - 7.3±1.4
day

Phlegmon of the subclavian region complicated the course of the underlying disease in 8 patients: 4 men and 4 women aged 22 to 78 years, the average age was 45.5±5.8 years. The right subclavian vein was catheterized in 6 patients, the left - in 2 patients. The catheter was in the subclavian vein from 3 to 7 days, the average time the catheter was in the vein was 7.8±0.6 days.

The patients had the following diseases that caused their hospitalization in (Table 1).

Table 1

Indications for hospitalization of patients who have developed infiltration and phlegmon of the subclavian region

Nosological forms of diseases	Number of patients with synfiltrate	Number of patients with phlegmon	General number of patients
Surgical profile			
Perforated duodenal ulcer	1	1	
Gastric ulcer complicated by bleeding	1		
Acute pancreatitis	1		
Acute appendicitis	1		
Thrombosis of the mesenteric vessels	1		
Acute cholecystitis	1		

Acute intestinal obstruction	1		
hip fracture	1		
Bladder rupture	1		
Varicose veins of the esophagus with bleeding	1	1	
Therapeutic profile			
Acute pneumonia	2	2	
Acute myocardial infarction	1	1	2
Diabetes	1	1	2
Nonspecific ulcerative colitis	1	1	
Neurological diseases	1	1	
TOTAL	10	8	18

As in the entire group of patients with purulent-septic complications of subclavian vein catheterization, surgical diseases were the main reason for hospitalization (10 out of 18).

3 patients had foci of chronic infection, most patients (15 people) had concomitant diseases.

The average bed-day in the group of patients with infiltrate of the subclavian region was 19.5±2.2 days, in the group of patients with phlegmon of the subclavian region 25±3.2 days.

The clinical picture of the developed complications included local and general clinical signs.

Local clinical signs of infiltration and phlegmon of the subclavian region, detected during physical examination, were due to the development of inflammation in the soft tissues around the catheter and included: infiltration at the puncture site of the subclavian vein, pain, skin hyperemia, pastosity and swelling of the soft tissues in the subclavian region.

The infiltrate in the subclavian region usually developed in the first 3-7 days after cavacatheterization (Fig. 1).

Rice. 1. B-th B., 22 years old, I.B. No. 2448. Soft tissue infiltrate of the subclavian region on the right.

At first, it manifested itself as local dense infiltration at the site of the subclavian catheter and skin hyperemia (4.8 ± 1.8 days on average). Then (at 7±1.2 days) pains of varying intensity appeared at the site of catheter insertion. The pains were mostly local in nature.

Local symptoms of phlegmon of the subclavian region developed 8-12 days after catheterization (Fig. 2). They were manifested by hyperemia of the skin (by 8.6±1.3 days), pastosity and swelling of the soft tissues of the subclavian region without a clear boundary (by 9±1.1 days), pus discharge from the puncture hole (by 12.2±1.3 days).

Patients complained of pulling, burning pain in the subclavian region with irradiation to the neck and upper limb. Pain appeared, as a rule, on 11±1.6 days.

Rice. 2. B-th I., 22 years old, I.B. No. 2957. Phlegmon of soft tissues of the subclavian region on the right.

When measuring CVP, it turned out that it was elevated in 1 patient with an infiltrate of the subclavian region up to 125 mm of water. Art. and in 2 patients with phlegmon of the subclavian region (up to 124 and 128 mm of water column, respectively). This was due to the presence of concomitant pathology: pneumonia - in 2 patients and heart failure - in 1 patient. In 15 patients with a normal level of CVP, an additional stress test with a cotton-gauze ball was carried out, but it did not reveal any pathology.

General clinical signs of soft tissue inflammation around kavakateter often appeared earlier than local symptoms. Thus, 3-4 days after catheterization, 6 patients with infiltrate of the subclavian region and 4 patients with phlegmon of the subclavian region showed an increase in body temperature to 37.5°C with its normalization in the next few days. At 5.9±1.7 days, 3 patients with infiltrate and 7 patients with phlegmon of the subclavian region, against the background of adequate treatment of the underlying and concomitant diseases, developed an unmotivated deterioration in their condition: increasing general weakness, weakness, pulling pains in muscles and joints.

An increase in body temperature above 38.0°C with chills on days 5-7 from the moment the catheter was placed was noted in 4 patients with infiltrate of the subclavian region and in all patients with phlegmon of the subclavian region. Other signs of a systemic inflammatory reaction (HR tachycardia > 90/min, leukocytosis in blood tests >12x109/ml, respiratory rate >20/min) developed in 3 patients with infiltrate and in all patients with subclavian phlegmon a little later - by 6.1±1, 1 day

Based on the general clinical blood tests, the Kalf-Kalif leukocyte intoxication index (LII) was calculated. There was an increase in LII by 5-7 days, compared with 3 days from the moment catheter placement, up to 2.0 - 2.5 in patients with infiltrate of the subclavian region and above 3.0 - in patients with phlegmon of the subclavian region. In addition to leukocytosis with a shift of the leukocyte formula to the left, an ESR acceleration was observed (up to 40 mm / h or more).

When using the SOFA scale in patients with phlegmon infiltrate of the subclavian region, organ failure was not detected.

When assessing the severity of the condition of patients on the APACHE II scale by 3 days from the installation of the subclavian catheter and on days 5-

7 (the average development of the complication) an increase in the severity of the condition of patients was noted, which was expressed in an increase in the number of points. So, in patients with subclavian synfiltrate, the average number of points on the APACHE II scale on day 3 was 7.5±1.5 points, on days 5-7 - 8.7±1.6, in patients with phlegmon - 8±1 and 12 ±0.9 points, respectively. Ultrasound examination (n=18) shows edema and infiltration of the skin and subcutaneous fat of the subclavian region, the subclavian vein and the internal jugular vein are completely passable, without pathological inclusions, the walls of the veins are elastic, the blood flow velocity is not changed.

All patients with infiltrate and phlegmon of the subclavian region underwent microbiological studies, which included: sowing the tip of the catheter when it was removed, sowing blood from the catheter, triple sowing peripheral venous blood, sowing discharge from wounds during opening of phlegmon.

The qualitative composition of the microflora isolated from the tip of the catheter consisted of: Staphylococcus aureus - in 7 patients and St. epidermidis - in 6 patients. The growth of microflora was obtained in 13 out of 18 samples. When examining blood from the catheter, the following data were obtained: St. aureus
detected in 3 patients, St. epidermidis - in 5 patients. Blood culture from intact peripheral vein was positive in 4 patients with phlegmon of the subclavian region (causative agent - Staphylococcus aureus). The study of the composition of the microflora from wounds during the opening of phlegmon of the subclavian region gave the following results: St. aureus - 4 patients, St. epidermidis - 1 patient, St. aureus and St. epidermidis - 3 patients, the growth of microorganisms was obtained in 80% of the samples taken.

Conclusion: Thus, the diagnosis of infiltrate and phlegmon of the subclavian region is based mainly on local symptoms of inflammation of the soft tissues around the catheter. In this case, it is necessary to take into account the general clinical signs of complications, which often appear earlier than local changes at the puncture site.

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