

## SIMULTANEOUS SURGERIES IN CHRONIC IMMUNE THROMBOCYTOPENIA

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### ABSTRACT

**Background and objectives:** Basic information about the essence of simultaneous surgeries and the possibilities of their performance in diseases of different organs and spleen in modern surgical practice is presented.

**Design and methods:** We retrospectively analyzed the data on 127 patients (56 males, 71 females) with chronic immune thrombocytopenia between 2015 and 2019 in the Research Institute of Hematology of Republic of Uzbekistan.

**Results:** The analysis of the results of the use of simultaneous surgeries in 17 (13.3%) of 127 patients with chronic immune thrombocytopenia was carried out. Taking into account the specifics of hematological pathology, the indications were determined for the most optimal options for such surgeries.

**Interpretation and conclusions:** Simultaneous surgeries are a promising method for the treatment of several surgical diseases in hematological practice.

**Key words:** blood diseases, splenectomy, simultaneous surgeries.

## INTRODUCTION

Simultaneous surgical interventions in surgical practice have been known for a very long time. For the first time, A. Claudius reported such a surgery in 1735: the patient underwent appendectomy in combination with hernioplasty [19,18,20]. Currently, simultaneous surgeries are understood as a surgical intervention simultaneously performed on two or more organs for etiological unrelated diseases [9,16,18,20,22]. Interest in simultaneous surgeries is natural and due to the fact that combined surgical pathology, according to the WHO [20], occurs in 20-30% of surgical patients [20]. For instance, combined pathology occurs in every third patient in a surgical profile, however, paradoxically, the percentage of simultaneous surgeries is no more than 6% of all possible interventions.

According to the WHO data, in 30% of patients with abdominal pathology in a surgical profile, there are not two, but more combined diseases that require surgical treatment [18,20].

In the last two decades of the twentieth century, the number of publications on the possibility of performing simultaneous surgical interventions increased considerably to 500-700 publications per year (according to the results of the MEDLINE, EMBASE).

The advantages of simultaneous surgeries present not only in the fact that they cure the patient from several diseases at once, but also in the fact that they save the patient from the increasing risk associated with repeated surgical interventions, repeated anesthesia and, accordingly, with complications of the surgical and anesthetic profile [2,4,6]. It is important to remember that by agreeing to the simultaneous treatment of numerous surgical disorders, the patient eliminates the suffering decision for his mental condition for repeated surgical operations in the future..

According to several publications', simultaneously treatment of patients with combined surgical pathology rather than systematic, can decrease the consumption of medicines, the duration of the patient's hospitalisation and their general temporary disability. In addition, it can reduce the cost of treatment [6,9,17,19,23]. Due to the increase in the life expectancy of people and the improvement of diagnostic technologies, there has been a tendency in an increase in the number of patients with two or three combined surgical diseases, including in hematological patients. According to the World Health Organization (WHO) data, the frequency of combined surgical and hematological diseases in many patients is 15-20%, that poses a challenge for surgeons and hematologists about the possibility of simultaneous correction of such a pathology [3,17]. An increase in the

effectiveness of treatment of hematological patients requiring surgical intervention in the presence of combined surgical pathology is achieved by performing simultaneous surgeries.

However, in the scientific literature, evidence-based studies regarding to this problem are rare, although in practice many surgeons and hematologists note the need to perform such surgeries [3,23,26].

To decide the sequence of procedures, it is first required to determine the underlying condition, and the intervention should also be directed by asepsis, the importance of the stage of the operation, and the desire to reduce intervention time, albeit each case should be resolved individually.

Some patients with hematological diseases, including those with immune thrombocytopenia (IT), are currently undergoing splenectomy (SE).

Immune thrombocytopenia (IT) is one of the most common forms of hemorrhagic diathesis. According to V.G. Vogralik (1961), the proportion of this pathology is 43.1% of all forms of hemorrhagic diathesis. The pathogenesis of IT is based on the autoimmune process (Kafo A., 2003), when, for various reasons, the human body synthesizes antiplatelet autoantibodies, which also have an anti-megakaryocyte orientation (Donush E.K. etc, 1997; B Abdulkadirov K.M. 2004; Vorobev A.I. 2005; Kafo A. 2003; McMillan R. 2007).

It is vital to resolve the problem of planned splenectomy in patients with chronic PI (CIT) or frequent exacerbations with bleeding from the mucosal membranes. At the same time, clinical and laboratory remission is achieved in 70-90% of patients. The bulk of antiplatelet antibodies are synthesized in the spleen, after removal of which the antibody titer is significantly reduced and not detected. Splenectomy is a major surgery and the risk of post-splenectomy sepsis outweighs the risk of serious bleeding. Therefore, splenectomy should be performed no earlier than 12 months after diagnosis. The accepted age for splenectomy is five years and older, which is associated with the maturation of the immune system by this age. Indications for planned splenectomy are: frequent exacerbations with bleeding from the mucous membranes with a platelet count of less than 30,000. Moreover, in 12% -15% of cases, splenectomy is combined with other surgical interventions (Romashov F.N, 1989).

Before performing simultaneous procedures on patients with anemia and defective hemostasis, a thorough assessment and particular preparation is required, which influences the surgery's result.

Advances in anesthesia, hematology, and transfusion medicine, as well as improvements in surgical methods, reasonable preoperative planning, and

postoperative patient management, have made simultaneous surgeries in hematological patients more feasible.

The study focuses on the technical aspects of the splenectomy (SE), including a discussion of the numerous parameters that influence the trauma and success of the procedure. The goal of the study was to identify indications and contraindications for the use of simultaneous surgeries (SS), determine the most optimal choices for combining different surgeries, introduce them into clinical practice, and analyse the results of their usage in hematological pathology patients.

### **Materials and methods**

The study analyzed 127 patients data with IT and other surgical pathologies who were assessed and treated in the surgical departments of the Republic of Uzbekistan's Research Center of Hematology between 2015 and 2019.

Among the 127 patients there were 56 (44%) were men, 71 (56%) were women. The duration of the disease ranges from 1 to 20 years. Patients received on average two or more different glucocorticoid drugs. All patients underwent inpatient and outpatient treatment from two to five or more times with temporary improvement.

The following tests were performed on the patients: general blood and urine analysis, biochemistry, coagulation tests with coagulation time and length of blood bleeding, serum iron, hepatitis markers, circulating immune complexes, and myelogram were all determined. Depending on the nature of the concomitant pathology, ultrasound of the abdominal organs, fibro gastroduodenoscopy, X-ray examination of the chest, contrast fluoroscopy of the gastrointestinal tract, ECG, magnetic resonance and X-ray computer tomography, spirometry were additionally used.

All patients were admitted from single to  $10 \times 10^9$  g / l platelets and with hemorrhagic syndrome. In most cases, ecchymosis and petechiae were accompanied by bleeding of the mucous membranes. Of these, 33 (26%) were admitted with epistaxis, 19 (15%) - with gingival bleeding, 17 (25%) women had hyperpolymenorrhea together with other types of hemorrhagic syndrome, 1 (1.4%) patient had hematuria and other stabbing manifestations. 54 (43%) have post-hemorrhagic anemia of varying degrees.

Of these, 19 (15%) patients were diagnosed with various surgical pathologies, including an umbilical hernia in 6 patients: of them 5 women, 1 man, 5 men have an inguinal hernia, 3 women have chronic calculous cholecystitis, 3 patient have chronic hemorrhoids - 2 of them are women, 2 are men, lipomas of various sizes in 2 men.

As a pathogenetic therapy, glucocorticoids (GCS) were prescribed 1-1.5 mg / kg for chronic IT, in the form of tablets. 10 patients with gastritis prescribed hormones in the form of inhalation. Inhalation was carried out on a «Boreal» nebulizer inhaler (made in Italy) at a dose of 1-2.0 mg / kg. In addition, the patients received inhibitors of fibrinolysis, vascular wall protectors, stabilizers of biological membranes, and local treatment for nasal and gingival bleeding. Patients with severe anemia received erythrocyte mass transfusion.

If conservative therapy was ineffective, splenectomy was recommended. To perform splenectomy, 2-3 days before the operation, the dose of hormones was increased 2-3 times to prevent adrenal insufficiency. Indications for splenectomy were: cases of IT refractory to hormone therapy, with frequent relapses.

According to indications, 127 patients with CIT underwent splenectomy with the upper median incision. Simultaneously, 17 patients with various concomitant surgical pathologies underwent simultaneous surgeries in the form of hernia excision (9), cholecystectomy (3), hemorrhoidectomy (3), lipoma removal (2). Two patients with umbilical and inguinal hernia after conservative treatment, the number of platelets, remained isolated, due to severe bleeding during the surgery, only splenectomy was performed.

### **Results and discussion**

In 5 patients aged 18 to 51 years with CIT and umbilical hernia, after preparation for surgery, the number of platelets increased from 17000 to 28000. No signs of bleeding were taken for surgery. Splenectomy was performed using the traditional approach, accepted in the clinic, with minimal blood loss of about 50-70 ml and with careful hemostasis, subsequently, hernia repair was performed using the method according to Sapezhko and Mayo with minimal blood loss, about 15-20 ml. In the post-operative period, two patients developed a subcutaneous hematoma, which was drained on day 2. On the 2nd day after surgery, in these patients, the platelet count increased from 70,000 to 164,000.

Out of 4 patients aged 43 to 50 years with CIT and inguinal hernia, two of them had cutaneous ecchymosis and minor petechiae on the extremities, in these patients, after preparation for surgery, the number of platelets rose from 22,000 to 32,000. No signs of bleeding were taken for surgery and a splenectomy was performed with a blood loss of about 80 to 120 ml. Further, with careful hemostasis, a hernia repair was performed using the Girard-Spasokukotsky method with Kimbarovsky sutures, with a minimum blood loss of about 25-30 ml. In the postoperative period, one patient developed a subcutaneous hematoma, which was drained on day 2. On the 2nd day after the operation, the platelet count rose from 54,000 to 98,000.

In 3 patients aged 27 to 35 years with CIT with frequent exacerbations without signs of bleeding and chronic calculous cholecystitis, after preparation for surgery, the number of platelets rose from 35,000 to 42,000. Splenectomy removed the gallbladder from the bottom with blood loss up to 50 ml. 60 ml of hemorrhagic fluid was discharged from the drainage tube in the subhepatic region in 2 days. On day 3, the drainage tube is clean and removed. On the 2nd day after the operation, the platelet count increased from 67,000 to 73,000 and on the 3rd-4th day from 124,000 to 180,000.

In 3 patients aged 23 to 32 years with CIT and external hemorrhoids (a history of frequent bleeding), two of them had skin ecchymosis. After preparation for the operation, the number of platelets rose from 24,000 to 33,000. No signs of bleeding were taken for surgery and splenectomy was performed with minimal blood loss of about 40-50 ml and hemorrhoidectomy by the Millegan-Morgapi method. On day 1 after the operation, the number of platelets rose from 54,000 to 86,000 and on days 2-4 from 154,000 to 210,000.

Simultaneous surgeries (SS) were performed in two stages. The surgery on the spleen was performed in the first stage, and in the second, intervention on another organ. All patients were discharged in a satisfactory state of healing per prima.

### **Discussion of results**

All surgeries were carried out in a scheduled manner, with the operational risk factored in. In these patients, the postoperative period had some peculiarities (the need for prescribing narcotic painkillers persisted for 2-3 days, the duration of bed rest was 5-8 days, given that patients with IT receive hormonal drugs for a long time). In three cases, a postoperative wound hematoma was discovered.

When performing SS it is advisable to perform the surgery on the spleen as the first stage. The second stage of surgical treatment is preferably performed for concomitant surgical pathology. Early physical activity helps to avoid postoperative pneumonia and thromboembolic complications.

Conducting surgeries on patients with severe post-hemorrhagic syndrome is not recommended since it raises the risk of surgical interventions and affects the course of the postoperative period. During and after surgery, problems increase.

The fact that SS in spleen pathology are formed using two separate surgical methods can make the postoperative period more difficult due to the intensity of the pain syndrome. Simultaneously, by carefully selecting patients and selecting an appropriate anesthetic option, potential negative effects were minimized in the majority of cases. No lethal outcomes were observed.



### Conclusions

Considering the foregoing, it is reasonable to infer that SS in the spleen and other organs is a potential way of simultaneous surgical treatment of several diseases in the provision of specialized surgical planned care.e. One of the important principles of performing SS in the spleen is the simultaneous use of two surgeries using acceptable methods of surgical treatment. Simultaneous surgeries are justified in circumstances where refusing to undertake many surgical procedures at once can result in substantial consequences that worsen the underlying disease's progress. SS should be performed on the spleen in specialized departments and clinics that have the ability to adequately examine and with sufficient experience of surgeons operating in this field.

Advantages of simultaneous surgeries in hematological practice:

- Reducing the number of hours under general anesthesia;
- Possibility of simultaneous treatment of surgical pathology;
- Saving time;
- Simultaneous surgeries allow the patient to reduce the total time hospitalisation;
- Cost savings;
- Psychological comfort;
- For the patient, a simultaneous surgery is perceived as one surgical intervention, which significantly reduces the stress and anxiety levels before and after the surgery.

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