

Role of Splenectomy in Trauma, Hematology, and Immune Regulation

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DESCRIPTION

Splenectomy, the surgical removal of the spleen, is a medical procedure that carries significant clinical relevance due to the spleen's role in both the immune and circulatory systems. Although the spleen is not an essential organ for survival, it plays a critical role in filtering blood, recycling old or damaged red blood cells, and helping the body fight infections. When the spleen becomes diseased, damaged, or contributes to a pathological condition, its removal may become necessary. Despite its relatively uncommon occurrence, a splenectomy can be life-saving and dramatically improve the quality of life for individuals suffering from certain hematological or traumatic conditions.

The spleen is located in the upper left quadrant of the abdomen, tucked under the ribcage, and is about the size of a fist in healthy adults. It acts as a blood filter, removing abnormal cells and pathogens, and also stores platelets and white blood cells. Given these vital functions, the decision to perform a splenectomy is not taken lightly. There are two primary categories of indications for splenectomy: therapeutic and diagnostic. Therapeutic indications are more common and include conditions such as trauma, hematologic disorders, and certain cancers.

One of the most urgent reasons for splenectomy is splenic rupture, often caused by blunt abdominal trauma from accidents or contact sports. A ruptured spleen can result in life-threatening internal bleeding, requiring immediate surgical intervention. In non-emergency situations, splenectomy may be performed to manage hematologic diseases like hereditary spherocytosis, Idiopathic Thrombocytopenic Purpura (ITP), thalassemia, and certain types of leukemia or lymphoma. In these conditions, the spleen may become enlarged (splenomegaly) and overly active in destroying blood cells, contributing to anemia or thrombocytopenia. Removing the spleen can help restore a healthier balance in blood cell production and destruction.

Splenectomy may also be indicated in cases of hypersplenism, a condition where the spleen removes blood cells at an abnormally high rate, leading to cytopenias (deficiency of blood cells). In some cases, an enlarged spleen may also cause discomfort or

pain, interfere with nearby organs, or become prone to infarction. Occasionally, splenectomy is performed for diagnostic purposes when other tests are inconclusive, particularly in the evaluation of unexplained splenomegaly or lymphoid malignancies.

There are two main surgical approaches to splenectomy: open splenectomy and laparoscopic splenectomy. Open splenectomy involves a large incision in the abdomen and is typically used in emergency situations or when the spleen is significantly enlarged. Laparoscopic splenectomy, which uses small incisions and a camera to guide the procedure, is less invasive and associated with a quicker recovery, reduced postoperative pain, and lower risk of infection. The choice of technique depends on the patient's condition, the surgeon's experience, and the underlying reason for the surgery.

To mitigate infection risks, patients are typically vaccinated against pneumococcus, meningococcus, and *Haemophilus influenzae* before or shortly after surgery. Prophylactic antibiotics may also be prescribed, particularly in younger patients or those with other immunocompromising conditions. Patients are advised to seek immediate medical attention for any signs of infection, such as fever, as infections can progress rapidly in the absence of the spleen.

Life after splenectomy often requires a few lifestyle adjustments. Patients should carry medical identification that states they are asplenic and ensure regular follow-up with their healthcare provider. Most individuals can return to normal activities after recovery, although they may need to avoid certain travel destinations or take extra precautions due to their increased vulnerability to infections.

CONCLUSION

Splenectomy is a significant surgical procedure with both immediate and long-term considerations. While the removal of the spleen can be life-saving and beneficial in managing various medical conditions, it also introduces certain risks, especially related to infection. Thorough preoperative evaluation, careful surgical technique, and diligent postoperative care-including vaccinations and patient education-are essential to ensure

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optimal outcomes. As with many medical decisions, the choice to undergo a splenectomy involves weighing the benefits against

the risks, with the guidance of experienced medical professionals.