EDITORIAL

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Autologous Splenic Transplantation

In 1952, King and Shumacker[1] reported on 5 infants younger than 6 months of age who had developed severe sepsis within 3 years after splenectomies that had been performed for congenital spherocytosis. (Two of the infants died.) Before their report, the spleen had been considered a useless organ with a long list of liberal indications for its removal and any consideration of surgical repair for even the most minor laceration was condemned as being hazardous. Subsequent to this initial report, a voluminous bibliography on the subject was published amid great controversy but with the eventual general acceptance of overwhelming postsplenectomy sepsis (OPSS) as an entity that resulted in significant changes in surgical management, the development of new techniques designed to preserve splenic function, and the development of prophylactic vaccines.

Subsequent research has demonstrated with relative certainty the following noteworthy characteristics of OPSS:

1. After splenectomy, there is an increased risk of sepsis that persists to some degree throughout life.
2. The risk of the development of OPSS is greatest when splenectomy is performed during infancy. This risk decreases as the age at the time of splenectomy increases, with probably a small risk after splenectomy at any age.
3. If a portion of the spleen can be preserved, the degree of protection from OPSS appears to be proportional to the percentage of the spleen preserved.
4. The splenosis that develops after traumatic peritoneal seeding of splenic cells may provide some degree of immunologic protection but probably does not completely protect the patient against OPSS.
5. Autotransplantation of small particles of splenic parenchyma onto the peritoneal surface can be accomplished with a high degree of successful subsequent growth.
6. Vaccines developed against the most common etiologic organisms (pneumococci, meningococci, and *Haemophilus influenzae*) provide some degree of immunologic protection.
7. The cellular and humoral immunity of the spleen is being studied, but details of the exact mechanisms remain somewhat elusive.
8. Methods for the measurement of splenic immunocompetence in humans remain imprecise, impractical, and unreliable.

Drs. Pisters and Pachter in this issue of *Annals of Surgery* review the subject "Autologous Splenic Transplantation for Splenic Trauma." This comprehensive report summarizes the experimental data, surgical techniques, complications, and results of clinical trials. They recommend an omental pouch as the preferred site for autologous splenic transplantation, emphasizing that it is a safe procedure that is relatively free of complications with a satisfactory rate of success and subsequent demonstration of viable splenic tissue. They note, however, that the mere presence of splenic tissue, as in splenosis, does not necessarily imply reliable immune function and emphasize the lack of a reliable yardstick for measuring splenic immunocompetence in humans. They cite experimental data that suggest improved results by combining immunization plus autologous splenic transplantation but cautiously suggest further clinical experience before making any sweeping recommendations.

Because OPSS remains a threat throughout life, many years will be required to evaluate the degree of protection clinically. As the authors suggest, a multicenter cooperative effort with pooling of information to increase the numbers of patients would provide sufficient data to arrive at an earlier conclusion.

In the meantime, for the clinical surgeon, the recommendations are clear that, for younger patients, every effort should be made to preserve splenic tissue. Many children with traumatic rupture of the spleen can be managed without an operation by using sedation, bed rest, and even blood administration if facilities are available for careful, continuous monitoring. In the event of continued or recurrent hemodynamic instability, how-

ever, operative intervention is imperative. Splenorrhaphy in experienced hands can be accomplished in most instances, but even in children, splenectomy is sometimes the safest alternative. In the older patient, particularly elderly ones, the increased risk of life-threatening complications of hypovolemia demand an earlier operative intervention and a lower threshold for performing splenectomy. Whenever splenectomy is performed, regardless of the age of the patient, current recommendations call for the administration of prophylactic vaccines. The decision to perform an autologous splenic transplant at the time of splenectomy is one that must be left to the judgment of the individual surgeon because the long-term benefit of autologous splenic transplantation cannot be regarded at this time as being conclusive.

Lester W. Martin, M.D.
Cincinnati, Ohio

Reference

1. King H, Shumacker HB Jr. Splenic studies, I. Susceptibility to infection after splenectomy performed in infancy. Ann Surg 1952; 136:239–242.