



Lobulated Spleen: A Cadaveric Study – Segmental Resection of Spleen

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ABSTRACT

INTRODUCTION

Development: Spleen is associated with development of mesogastrium. It develops from the mesoderm during sixth week of intrauterine life

Mesenchymal Mass: spleen develops from the mesenchymal cells which proliferate to form the mesenchymal mass in the dorsal mesogastrium

Formation of lobules and single mass of splenic tissue: initially the splenic tissue is arranged as number of lobules which later join together to form a single splenic mass. The notches in the superior border of the adult spleen are representatives of the growth that separated the lobules during fetal period

Accessory spleen: Is formed in 10% of individuals which may be located in one of the peritoneal folds commonly near the hilum of the spleen or embedded partly or wholly in the tail of pancreas or within the gastrosplenic ligament or along the splenic artery or in the lenorenal ligament

MATERIALS AND METHODS

A study was done on twenty cadavers used in routine dissection for the undergraduate student from Kanyakumari Government Medical College, Asaripallam, Nagercoil, Kanyakumari District. The cadavers were fixed in 10% of formalin, glycerin, isopropylol and sodium chloride solution. Variations from the normal spleen were found as lobules.

INTRODUCTION

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a) **Mesenchymal Mass:** spleen develops from the mesenchymal cells which proliferate to form the mesenchymal mass in the dorsal mesogastrium

- b) **Formation of lobules and single mass of splenic tissue:** initially the splenic tissue is arranged as number of lobules which later join together to form a single splenic mass. The notches in the superior border of the adult spleen are representatives of the growth that separated the lobules during fetal period
- c) **Accessory spleen:** Is formed in 10% of individuals which may be located in one of the peritoneal folds commonly near the hilum of the spleen or embedded partly or wholly in the tail of pancreas or within the gastrosplenic ligament or along the splenic artery or in the lenorenal ligament

Partial splenectomy is followed by rapid regeneration of lost tissue and there is no significant loss in any of the functions of spleen. In total splenectomy it has few hematological consequences and loss in immune function particularly in the antibody response to systemic infections with encapsulated bacteria. This is known as overwhelming post splenectomy sepsis syndrome. Splenectomy in adults leads to increased lymphocytic neutrophils, eosinophils and platelet count in peripheral blood. These effects fade and disappear within few weeks

SPLENIC ARTERY

A largest branch from coeliac axis divides into two or three main branches before entering the hilum of spleen. These branches enter the hilum. they divide further into four or five segmental arteries that each supply a segment of the splenic tissue. There is relatively little arterial collateral supply between the segments which means that occlusion of a segmental vessel often leads to infarction of the segment of the spleen

SPLENIC VEIN

Is formed within the splenorenal ligament close to the tip of tail of pancreas by five or six tributaries that emerge from the hilum of the spleen. The tributaries are thin walled and often spread over several centimeters because the hilum is long and

thin. This must be remembered during surgical removal of spleen because the venous tributaries must be divided close to the hilum to avoid injury to the pancreatic tail. They should be ligated in several groups to prevent the risk of avulsion of the vein from the splenic hilum and consequent profuse bleeding before the resection is complete. The short gastric and left gastroepiploic vein drain into the splenic vein

LYMPHATICS

Lymphatic vessels drain along the splenic trabeculae and pass out of the hilum in two lymphatic vessels that accompany the splenic artery and vein and drain into nodes of the hilum and to celiac nodes.

SPLENIC MICROCIRCULATION

The segmental splenic arteries enter the hilum and ramify in the trabeculae throughout the organ. the splenic vein forms in the splenorenal ligament from tributaries emerging from the hilum. They are similar in number to the arterial branches. Small arteries tapering to arterioles pass through the white pulp then turn abruptly to form penicillar branches and pass out of white pulp into the marginal zone and red pulp. The passage of blood through the vascular compartments between the arterioles and splenic veins is referred to as intermediate circulation then blood is passed to the venous sinusoids then venules and to small veins and thence into larger veins that drain the spleen at its hilum.





DISCUSSION

The segmental splenic arteries enter the hilum and ramify in the trabeculae throughout the organ. the splenic vein forms in the splenorenal ligament from tributaries emerging from the hilum. They are similar in number to the arterial branches. Small arteries tapering to arterioles pass through the white pulp then turn abruptly to form penicillar branches and pass out of white pulp into the marginal zone and red pulp. The passage of

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The above study clearly states that conservative splenectomy or lobulectomy can be performed in case of injury to the spleen or in any diseased process so that post operative complications can be avoided.

The role of pneumococcal vaccination following splenectomy can be avoided.

CONCLUSION

A thorough knowledge of development of spleen is essential for its management as conservative splenectomy / lobulectomy can be performed during injuries to spleen or any localized pathology of spleen.

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