G46 Forensic Pathology of the Rupture of an Enlarged Spleen

Maurice G. Rogev, MBChB, 11/1 Zamenhof Street, Tel Aviv, Jaffo 64373, ISRAEL*

The goal of this presentation is to demonstrate the importance of the complete autopsy examination of bodies in whom death resulted from the rupture of an enlarged spleen. The causes of the splenomegaly can be determined. The mechanism causing the rupture can be determined i.e., if the rupture was spontaneous of resulted from violence. The "thin skull" iegal concept is relenent in these cases.

This presentation will impact the forensic community by drawing the attention of medical examiners to the various forensis medical aspects of deaths that can result from the rupture of enlarged spleens.The importance of complete autopsies in these cases will be clear. The autopsy will reveal the many different circumstances in which ruptures of the spleen are likely to occur.

Rupture of the spleen causes profuse intra-abdominal hemorrhage leading to hypovolemic shock, which, if undiagnosed and untreated, can be fatal. A medical examiner may occasionally be confronted by an autopsy finding of death due to complications following rupture of an enlarged spleen (splenomegaly). In such cases it is important to bear in mind that rupture of the spleen can occur spontaneously with no history or external signs of trauma to the left side of the chest or to the upper left abdomen.

It is however, vitally important to examine for signs of external injury which may have been caused by violence because, when splenomegaly is present, even light violence suffered by a victim, can be the cause of rupture of the spleen. The nature, site and extent of the external injury will indicate the severity of the violence inflicted on the body.

There is a clear analogy to the legal concept of the "paper-thin" skull, in which injury to an abnormally vulnerable part of the body can produce disastrous consequences, disproportionate to the results that would have resulted if the violence had been inflicted on an individual who did not suffer from the particular abnormality. The name of the concept derives from the classic example of a "paper-thin" skull in which a modest blow can produce permanent brain damage.

The importance of forensic medical evaluation is evident in cases where rupture of the spleen can be connected to an act of violence inflicted on the victim. In the presence of splenomegaly the severity of the act of violence must be assessed using the results of a complete autopsy and the special investigations to be recommended in this presentation.

The presentation will discuss diagnostic procedures that will facilitate the evaluation of the etiology of the splenomegaly and the pathological changes that predispose to rupture. The causes of splenomegaly are diverse, but they may be conveniently grouped into the following categories:

- Inflammatory splenomegaly: acute or chronic enlargement of the spleen that develops in association with various infections or inflammatory processes. e.g., infectious mononucleosis.
- Hyper plastic splenomegaly: due to work hypertrophy resulting from the removal of abnormal blood cells from the circulation or as the result of extramedullary hematopoiesis e.g., leukemia.
- Congestive splenomegaly: resulting from cirrhosis with portal hypertension, splenic vein occlusion (thrombosis), or congestive heart failure (CHF) with increased venous pressure .e.g., bilharzia, chronic alcoholism, cirrhosis caused by aflatoxin (from fungus aspergillus flavus and aspergillus parasiticus).
- infiltrative splenomegaly: caused by the engorgement of macrophages with indigestible materials (e.g., Gaucher`s disease or amyloidosis,) or by the infiltration by malignancy e.g., Lymphoma.

Splenic filtering of blood-borne pathogens, such as parasites or encapsulated organisms, may also lead to splenic enlargement (e.g., parasites causing malaria or kala azar (Leishmania).

A complete autopsy including a detailed description of the macroscopic appearance of all organs is essential. Special examinations must include:

- Histo-pathological examination of samples taken from the organs and selected soft tissue and bone.
- Toxicological examination to isolate toxic organic substances.
- Microbiological examination including isolation and identification of bacteria, viruses, or parasites.

Forensic, Splenomegaly, Rupture

 ** Presenting Author*