

CHAPTERS IN THE PATHOLOGY OF THE TALMUD

Halakhic Explanations and Medical Interpretations Pertaining
to Pathological Knowledge in Jewish Law

by

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SUMMARY

INTRODUCTION

The Talmud is the codex of the religious Jew. But, besides laws it also includes many other subjects such as ethics, theology, philosophy, history, geometry, astronomy, natural sciences, and medicine. All these items are spread out in the many chapters of the Talmud without any order or key. Moreover, all this knowledge is mentioned only in connection with halakha, and only if it serves to understand the law. Therefore, we do not have any scientific book per-se, written by the sages of the Talmud. For this reason the non-Hebraic historically-minded scientists did not fully appreciate the talmudic contribution to science generally, and to medicine in particular.

The sages of the Talmud contributed to medicine mostly in the field of anatomical pathology. They may be regarded as pioneers in this branch of medicine, one-thousand years before its development in modern medicine.

They spent a great deal of time in experiments on animals and human beings, especially in post-mortem examinations of certain animals. This they did in order to find out whether they were fit to be eaten – **Kasher** – or not – **Taref**.

They described many structural changes in most systems of the body on the basis of color, shape, consistency, size, and traumatic lesions.

As to the general history of pathology, Galen (129–200) was the first to write a special book on this subject: “De Locis Affectis”, but he used the wrong humoral and pneumatic pathogenetic theories. Theophile Bonet (1620–1689) was the first to use systematically post-mortom findings. No one had previously written a modern and well organized book on anatomical pathology before G.B. Morgagni (1682–1771). Pathology became a definite and academically acknowledged discipline in medicine only in the 19th century through Cruveilhier (1836).

Very little has been written about the pathology in the Talmud. The main works on this subject are: “The Talmud and Medicine” (Hebrew) by J.L. Kazenelson (1928) and chapters in the classical work: “Biblical-talmudic Medicine” (German) by J. Preuss (1911)

The purpose of this work is to gather and put in order some chapters pertaining to the pathological knowledge of the talmudic period. The work is built on quotes from original sources, and each of them is followed by documentation and bibliography. Included also are halakhic explanations and medical interpretations. Equivalants from ancient medicine are offered and an integration of halakha, history and medicine is being aspired. Also, pathological descriptions were added from the later halakhic literature. In order to enhance the understanding of the talmudic pathology several data on anatomy and traumatology in the Talmud have been added.

The present work is arranged according to the systems of the body, as they are found in current textbooks.

CHAPTER 1: THE CARDIOVASCULAR SYSTEM

Anatomical data described in the Talmud and the later halakhic literature: the heart is placed in the left side of the chest; there are two chambers – one big and one small (some sages thought that there are three chambers, including *Ventriculus Tertius*, as Aristotle wrote); the pericardium is mentioned; and the “three great vessels”, i.e. Aorta, Pulmonary artery and Hepatic artery or Inferior venacava. There is no description of the valves.

The *pathology* described in the Talmud includes only the tamponade of the heart and perforation of the great vessels. (The reason for this is the rarity of arteriosclerosis and valvular diseases in animals).

The pathology described in the later halakhic literature includes: *Os cordis*, *acardia* and *hemi-cardium*, *hydropericard*, and fibrous and serous pericarditis.

CHAPTER 2: THE LUNGS

Anatomical data described in the Talmud and the later halakhic literature include the trachea, the pleura, the lobes, the fissures and the bronchi. (This anatomy was not correctly given neither by Hippocrates nor by Galen).

Pathology: Agenesis and hypoplasia of lobes; accessory lobes; anomalies of size and shape of lobes; atelectasis; caseous tuberculosis; calcification of tuberculous lesions; infarction; pneumothorax (tension and traumatic); emphysema; lung abscess; echinococcal cyst; adhesions of various types; hepatization (grey, red and yellow); hyperemia; anthracosis; worms in the lung.

Traumatic lesions described in the Talmud include perforation of the pleura of various types.

CHAPTER 3: THE GASTROINTESTINAL TRACT

This chapter is divided into three sections: esophagus, stomach, intestines.

a) **ESOPHAGUS**: the *anatomical* data include the pharynx, the cardia and the mucous and muscular layers.

The *pathology* mentioned includes anomalies of the esophagus, such as reduplication, congenital agenesis, atresia, trachea-esophageal fistula.

Traumatic lesions include perforation of the esophagus.

b) **STOMACH**: *Anatomy*: description of the four stomachs of ruminants: Rumen, Reticulum, Omasum, Abomasum.

Pathology: hypertrophic gastritis; necrosis; parasitic infestation; diverticula.

Traumatology: Perforations of the stomachs. The sages of the Talmud paid special attention to location, etiology, size and kind of perforation – whether it is occult or open.

c) **INTESTINES:** *Anatomy:* detailed description of the parts of the intestines: duodenum; papilla of Vater; small intestines; ascending, transverse and descending colon; rectum.

Pathology: Anomalies, such as reduplication of intestines; low type of imperforated anus (with “surgical” solution to this problem); diverticulosis; hiatus and inguinal hernia; prolapse recti; fistula ani; adhesiones; intestinal pneumatosis and parasitic infestation.

Traumatology: various states of perforation.

CHAPTER 4 : THE LIVER

Anatomy and physiology: Caudate lobe; portal space; Hepatic artery (and Diaphragma). The talmudic sages knew that the liver has vital functions and recognized its ability to regenerate.

Pathology: Agenesis of liver; different stages of post-necrotic cirrhosis; parasitic infestation; massive necrosis; cysts; reduplication of the liver.

CHAPTER 5: THE BILIARY SYSTEM

Anatomical descriptions include the gall-bladder, the biliary ducts and the duodenal papilla.

Pathology: Cholelithiasis; foreign bodies in the gall bladder, biliary atresia; intra-hepatic gall bladder; anomalies, such as agenesis and reduplication of the gall-bladder and the common bile duct.

CHAPTER 6: THE SPLEEN

Anatomy: The Talmud divided the spleen into two parts: thick and thin.

Pathology: anomalies, such as asplenia and accessory spleens; septic infarction; degenerative cysts; necrotic states; echinococcal cysts; fibrotic spleen in hemolytic anemias or severe hemorrhagic states; splenomegaly – all these are mentioned in the later halakhic literature. The Talmud is mentioning the post-splenectomy state.

Traumatology: perforation of the spleen; rupture of various parts with reference to occult and delayed rupture.

CHAPTER 7 : THE KIDNEYS AND THE URINARY TRACT

In ancient medicine the urine was thought to be attracted actively by the kidneys and some thought that the kidneys did not have any function. A counseling power was also ascribed to the kidneys in a talmudic saying.

Pathology: anomalies, such as one kidney only, three kidneys, horse-shoe or fusion kidney, ectopic kidney and ossification in the kidneys. Pathological states dealt with in the Talmud and the later halakhic literature include aplasia and contracted kidneys with a trial of a differential diagnosis between them (there is also a quantitative reference to this pathology); necrotizing pyelonephritis or ulcero-caseous tuberculosis; hydronephrosis; pyelonephritis; solitary cyst and retention cyst; hemorrhage in the kidney; hematuria; nephrolithiasis. An attempt was made to explain the halakha of נִיטְלוּ הַכְּלִיּוֹת (the total absence of the kidneys).

CHAPTER 8 : THE CENTRAL NERVOUS SYSTEM

In the ancient world – both among Jews and Greeks – there was a difference of opinion as to where the center of wisdom and intelligence was located – in the heart or in the brain. This theoretical question was not concluded even in the middle ages.

As to the functional aspect – the ancient world believed that damage to the meninges was incurable and fatal.

Anatomy: pia and dura mater; occypital condyles; spinal cord; cauda equina and some peripheral nerves.

Pathology: brain atrophy; encephalomalacia of various etiologies in different stages; hydrocephalus; brain abscess; parasitic infestation. There is a unique clinical-pathological discussion of weakness of the legs.

Traumatology: perforation of the meninges and various types of damage to the spinal cord.

There is some evidence of neurosurgery which was performed in the talmudic period.

CHAPTER 9 : THE HEAD

This chapter is divided into the following paragraphs: a) the skull; b) jaws and lips; c) external ear; d) the nose.

A) *The skull:* exycephalus or one of the other forms of craniosynostosis; caput quadratum; deformities caused by rachitis, i.e. sagittal and occypital widening; microcephalus and some other congenital anomalies.