VISCERAL OSTEOPATHY

Seminar

The Spleen



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The author of the Seminar

- Graduated D.O. in 2005 6 years full time studies
- Private practice near Lyon FR
- Since 2018 : Anatomy teacher in Lyon
- 2006-2017 : Visceral Osteopathy teacher in Lyon
- 2011-2015 : Visceral and Urogenital Osteopathy teacher in Nantes
- Since 2014 : Collaborator of Finet and Williame D.O. : Workshops in France, Belgium, Spain, Germany... Structuring the osteopathic treatment : simplified procedure, visceral and urogenital osteopathy on Evidence Based Medicine and own Researches.
- <u>http://deltadyn.be</u>

Instagram : osteopat_niko

Finet and Williame

Since 1985 : Studies on the visceral movements.

Physiological and non physiological movements of the organs.

Deltadyn.be



The spleen



- Anatomy

- Lymphoid organ, friable, located in the left hypochondria,
- L : 12 cm, W : 8 cm, Thickness : 4 cm,
- 200 g. (adult),
- Not palpable in physiology.

- Location :
 - Superior edge of 9th rib,
 - Inferior edge of 11th rib,
 - Anterior edge : Should not be further than the medioaxillary line (left side),
 - Matt sound during percussion.



- 2 faces, 2 ends and 2 edges :
 - Posterior external face = diaphragmatic face,
 convex, against the diaphragm,
 - Anterior internal face = visceral face, flat, divided
 in 3 parts by the splenic hilum,
 - Anterior and posterior ends,
 - Superior and inferior edges.



B - Connections

- Diaphragmatic face :
 - Smooth, convex, related to the left pleura
 through the diaphragm, to the left lung and the
 ribs 9 to 11.

- Visceral face : 3 parts :
 - <u>Hilum</u>: Opening for the splenic vessels and nerves. The anterior inferior part related to the pancreas tail.,
 - <u>Gastric area</u>: Above the hilum, related to the stomach (greater curvature) by the gastrosplenic omentum,
 - <u>Renal area</u>: Under the hilum and posterior, related to the anterior face of the left kidney,
 - <u>Colic area</u>: Under the hilum and anterior, related to the left colic angle and the phrenicocolic ligament.

- <u>Superior edge</u>: separates the diaphragmatic face and the gastric face. Crenated edge, related to the wall of the hypochondrium.
- Inferior edge : separates the diaphragmatic face and the renal face, between diaphragm and superior part of the left kidney.
- <u>Anterior end</u>: spread, lateral, related to the left colic angle and phrenicocolic ligament.
- <u>Posterior end</u>: Round, in direction of T11.

<u>C – Fixing structures</u>

- The spleen is fixed by :
 - The neighbour organs (kidney, stomach, left colic angle),
 - Phrenicosplenic ligament, suspending the spleen to the diaphragm,
 - Phrenicocolic ligament, supporting the inferior edge of the spleen,
 - Gastrosplenic omentum and pancreaticosplenic omentum, to the splenic hilum,
 - Vascular pedicle.





FIGURE 31

Coupe horizontale passant par la douzième vertébre dorsale (segment inférieur de la coupe).

- Portion gauche du diaphragme.
 Rein gauche.
- 3. Surrénale gauche.
- 4. Rate.
- 5. Epiploon pancréatico-splénique.
- 6. Epiploon gastro-splénique.
- 7. Corps du pancréas.
- 8. Estomac.

- 9. Aorte abdominale.
- 10. Tronc caliaque.
- 11. Petit épiploon.
- 12. Ligament suspenseur du foie.
- 13. Foie.
 - 14. Veine porte.
 - 15. Veine cave inférieure.
 - 16. Veine grande azygos.
 - 17. Surrénale droite.
 - 18. Rein droit.
 - 19. Portion droite du diaphragme.
 - 20. Canal thoracique.

D – Blood supply

- Arteries :
 - Splenic art. (celiac trunk), travels behind the superior edge of the pancreas, then in front of the pancreatic tail, finishes in the pancreaticosplenic omentum.
 - Collateral branches for the pancreas and the stomach.
 - Terminal branches : Lobar arteries (2 or 3), to the splenic lobes.



D – Blood supply

• Veins :

 Venous sinus gives trabecular veins which converge in the hilum and form the splenic vein.

The splenic vein receives the inferior mesenteric vein (splenomesenteric trunk), which forms the portal vein with the superior mesenteric vein.



<u>E – Nerve supply</u>

- Parasympathetic : vagus nerve (Mostly right),
- Sympathetic : greater splanchnic nerves (T6-T9).

<u>F – Lymph supply</u>

- Lymph nodes in the trabeculae and under the capsule, draining in the splenic lymph nodes in the hilum,
- Drainage in the superior pancreatic nodes, along the splenic artery.

<u>II – Physiology</u>

- Forming the blood stem cells in the fetus,
- Lymphopoiesis : Forming the lymphocytes (immunity),
- Hemolysis : destruction of the abnormal/old erythrocytes (>120 days) : Heme -> bilirubin, iron -> recycling,
- Destruction of the blood platelets and other fragments of cells.

<u>III – Pathology</u>

- <u>Splenomegaly</u>:
- Increase of the spleen size, becomes palpable,
- Main etiologies :
 - Blood and lymphatic diseases (lymphoma, leukaemia, hemolytic anemia),
 - Hepatic diseases (cirrhosis, hepatitis),
 - Infections (malaria, typhoid, mononucleosis),
 - Sarcoma,
 - Abscess,
 - Alveolar ecchinococcosis (ingestion of eggs of the parasite *E.multilocularis : dogs, cats, foxes…).*

- <u>Symptoms</u> :
 - General tireness,
 - Lower immunity,
 - Fever (depending on etiology),
 - Pain in the left hypochondrium (like a compression),
- Diagnosis : Ultrasound.
- Always search for the etiology of the splenomegaly.

- <u>Hypersplenism</u> :
- Excessive function of the spleen, often associated with a splenomegaly.
- Anemia, granulopenia, and/or thrombocytopenia.
- Etiologies :
 - Essential Purpura (autoimmune disease),
 - Infection (tuberculosis),
 - Lymphocyte-depleted Hodgkin's disease (lymphoma),
 - Cirrhosis,
 - Autoimmune diseases...

- <u>Symptoms</u>:
 - General tireness,
 - Lower immunity,
 - Fever is possible (depending on etiology),
 - Pain in the left hypochondrium (like a compression),
 - Depends on the primary disease.
- Diagnosis : Change in the cell blood count, specific measurements of the primary disease.
- Search for the etiology of hypersplenism.

<u>V – Osteopathy</u>

- Bearing feeling in the left hypochondrium, like a side stitch, difficulty to breath in...
- Articular dysfunctions of ribs 9 to 11 on the left,
- Lower immunity,
- Sequelae of infection (past infection), mononucleosis...
- Always check if liver dysfunction, dysfunction of the splanchnic area without signs on other organs.

- Always search for an abdominal or costal trauma : spleen fracture to avoid !!
- Past history of blood diseases = splenomegaly suspected.



Localization of the spleen : percussion

Spleen palpation : 2 techniques

<u>Physiology</u>: no contact, or mass contact in the end of breath in

Ptosis : contact during breath in, difficult rise

<u>Splenomegaly</u>: Fast contact (without breath in, or beginning of breath in)

Spleen palpation : Cephalic method

Test of the left phrenico-colic ligament

- 1 Sitting position
- 2 Supine position

Test of the gastrosplenic omentum Supine position Test of the gastrosplenic omentum Side position

Corrections

The spleen, as all organs, needs a global approach for efficiency.

Mechanical structures

Vascular structures

Neurology

Correction of the left phrenico-colic ligament : Spleen ptosis

Correction of the spleen ptosis : Supine position Correction of the pancreaticosplenic et gastrosplenic omentae Side position

Vascular stimulation of the spleen