

Diverticular Disease

Diverticular disease (*diverticulosis*) is the presence of localized outpouchings in the bowel wall. It can be caused when a chronic lack of dietary fiber occurs, but there are also some genetic consequences. This explains why the diverticular disease is very rare in underdeveloped countries^[1].

Diverticular disease usually affects the sigmoid colon.

Pathophysiology and pathology

In diverticular disease, the bowel wall is **thicker** due to much more elastic tissue between the muscle fibers^[2]. **High intraluminal pressure** due to high amplitude contractions combined with constipated stool and functional hypersegmentation results in evagination of the bowel wall and thus diverticulosis.

Clinical signs

Diverticular disease can be asymptomatic. When symptoms occur, the clinical signs include^[2]:

- chronic diverticular pain
- rectal bleeding
- obstipation
- small feces
- episodic diarrhea

Diagnostics

Clinical signs will let doctor know about some process in the alimentary tract. Although **colonoscopy** is not recommended when an inflammation of diverticula is present, it is usually performed to see what is wrong in the large intestine. Diverticula are shown in the endoscopy image quiet well (see image).

If **ultrasonography** is performed, experienced doctor can see thickened bowel wall and changed structure of the intestinal loops.

Computed tomography (CT) can show thickened bowel wall as well and if perforations, abscesses or adhesions are present, they can be visible too.

Complications

Bleeding

Bleeding can occur in 20% of patients^[1]. Most of them are in a higher risk of bleeding because of hypertension, atherosclerosis or regular usage of non-steroidal anti-inflammatory drugs. However, these bleedings are usually self-limited and stop spontaneously. Diagnosis of diverticular bleeding can be made by colonoscopy or mesenteric angiography and in severe cases can be stopped by coiling or by emergency surgery.

Note: It is recommended to perform a surgery in patient with 6-units bleeding within 24 hours.^[1]

Inflammation

Diverticulitis is an inflammation of the diverticula. Clinical signs will include fever, anorexia, left lower quadrant abdominal pain and diarrhea. Some patients can end with peritonitis after perforation of an inflamed diverticulus and have to undergo an immediate laparotomy.

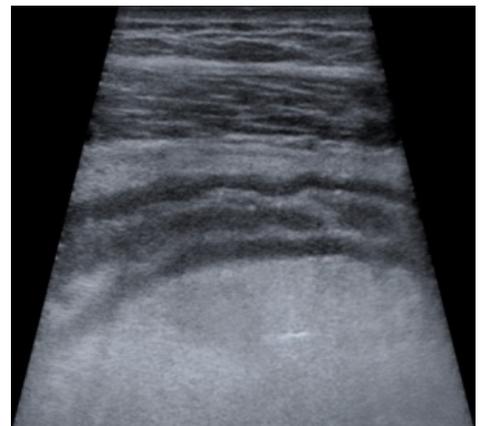
Computed tomography (CT) can show thickened bowel wall (more than 4 mm^[1]) and inflammation within the pericolic fat or collection of fluid. Using the barium-based contrast material or colonoscopy is strictly prohibited as the risk of perforation is very high.



Diverticula in the sigmoid colon.



Diverticulosis in endoscopy image.



Sonographical view of sigmoid diverticulosis. Bowel wall is thickened.

Therapy includes stopping oral intake, giving intravenous fluids and combination of intravenous antibiotics is used: ciprofloxacin and metronidazole or combination of trimethoprim/sulfamethoxazole^{[1][2]}. This covers aerobic gram-negative rods and anaerobic bacteria. This does not affect enterococci, so ampicillin can be added in some cases^[1].

Other complications

Other complications include^[2]:

- pericolic abscess
- intraperitoneal perforation
- fistula formation into other abdominal or pelvic viscera
- bowel-to-bowel adhesions
- fibrous strictures of bowel

Treatment

Asymptomatic diverticular disease may be treated only by diet alterations. The food should contain enough fiber.

Symptomatic disease with inflammation should be managed by antibiotics and bowel rest.

Surgical therapy includes proximal diversion of the fecal stream with an ileostomy or a colostomy, resection of the bowel part with pouch and anastomosis or diversion.

Links

References

1. FAUCI, Anthony - THORN, George - HARRISON, Tinsley Randolph. *Harrison's principles of internal medicine*. 17. edition. New York : McGraw-Hill, 2008. 2754 pp. ISBN 978-0-07-147691-1.
2. BURKITT, H. George - QUICK, Clive R. G. *Essential surgery : problems, diagnosis and management*. 4. edition. Edinburgh ; New York : Churchill Livingstone, 2007. 793 pp. ISBN 9780443103469.

Bibliography

- FAUCI, Anthony - THORN, George - HARRISON, Tinsley Randolph. *Harrison's principles of internal medicine*. 17. edition. New York : McGraw-Hill, 2008. 2754 pp. ISBN 978-0-07-147691-1.
- BURKITT, H. George - QUICK, Clive R. G. *Essential surgery : problems, diagnosis and management*. 4. edition. Edinburgh ; New York : Churchill Livingstone, 2007. 793 pp. ISBN 9780443103469.



Thickened bowel wall in CT image. Perforation of the diverticulum with free gas in the peritoneal cavity.



Diverticulosis with thickened bowel wall and multiple abscesses in coronary view.