



SURGICAL TREATMENT OF CHRONIC APPENDICITIS IN CHILDREN

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BACKGROUND

- chronic appendicitis (CA) is a rare condition; the rate of its occurrence is 1.5 – 3% of all cases of recurrent abdominal pain characterized by long-standing right lower quadrant pain.
- If chronic abdominal syndrome with pain localized in the right lower quadrant lasts for longer than three months, diagnostic laparoscopy is administered followed by appendectomy.

Aims of the study

- to develop a mathematical model or determining the indications for surgical treatment of CA in children
- to analyzed clinical, morphological and immunohistochemical studies of the appendix in order to confirm the adequacy of surgery for CA in children

METHODS

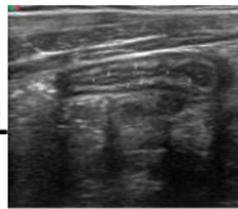
- 55 CA cases (33 boys and 22 girls).
- all patients had abdominal ultrasound, fiberoptic duodenogastroscopy and irrigography.
- clinical presentations were assessed using Pediatric Alvarado score
- an indication for laparoscopic appendectomy was right lower quadrant pain persisting for over six months, without signs of peritoneal irritation.
- immunohistochemistry: UltraVision (LabVision, UK) detection systems to VEGF, MMP-9, CD106 (LabVision, UK), VIP, collagen-III-alpha-1 (GeneTex, USA).
- SPSS v. 17 statistical package (SPSS Inc., Chicago, Illinois).

RESULTS

signs specific for CA: nonmigrating pain (AUC 0.71; 95% CI 0.63 – 0.79; p<0.0001), no tension of anterior abdominal wall (AUC 0.83; 95% CI 0.77 – 0.9; p<0.0001), no hyperthermia (AUC 0.68; 95% CI 0.6 – 0.77; p<0.0001), and no leukocytosis (AUC 0.78; 95% CI 0.71 – 0.86; p<0.0001), and no neutrophil shift in leukocyte formula (AUC 0.75; 95% CI 0.68 – 0.8; p<0.0001).

low prognostic value of the Alvarado score and Pediatric Appendicitis Score (AUC 0.09; 95% CI 0.01 – 1.0; p<0.0001) in determining the indications for surgery in CA.

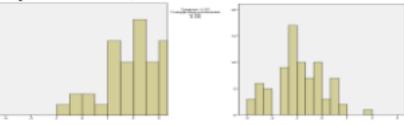
low specificity and accuracy of US in determining the signs specific for CA; it did not exceed 35%.



- sonogram of patient with CA



- removed vermiform appendix with signs of chronic inflammation

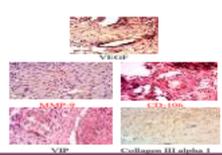


- group centroid and discriminant function values

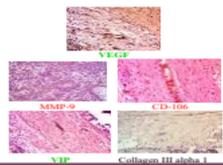
Classification	Count	Percentage
1	23	41.8%
2	20	36.4%
3	12	21.8%

GRAPHICAL IMAGE OR PICTURE FILE

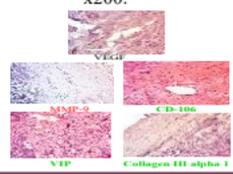
Type 1 (n = 23) — chronic inflammation.. Immunohistochemistry reaction with primary antibodies, DAB visualization counterstained with hematoxylin. Primary magnification x100, x200



Type 2 (n = 20) — lymphoid hyperplasia. Immunohistochemistry reaction with primary antibodies, DAB visualization counterstained with hematoxylin. Primary magnification x100, x200



Type 3 (n = 12) — catarrhal inflammation. Immunohistochemistry reaction with primary antibodies, DAB visualization counterstained with hematoxylin. Primary magnification x100, x200.



CONCLUSIONS

- the diagnosis of CA has no clear clinical symptoms and is a diagnosis of exclusion.
- laparoscopic removal of appendix vermiformis after a comprehensive workup can relieve abdominal pain in all patients with CA.
- most patients with CA have far-reaching changes in the structure of appendix vermiformis meeting the criteria of chronic inflammation.
- immunohistochemical and morphological changes pointing to autoimmune and vascular mechanisms of appendix damage in CA children.