FUNCTIONAL BOWEL DISORDERS IN PEDIATRICS

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FUNCTION BOWEL DISORDERS IN PEDIATRICS

- INFANTILE COLIC
  - 1 TO 3 MONTHS
  - ABDOMINAL PAIN?
- IRRITABLE COLON OF INFANCY
  - 5 MONTHS TO 3 YEARS
  - DIARRHEA
- CHRONIC RECURRENT ABD PAIN
  - 3 YEARS TO 13 YEARS
  - ABDOMINAL PAIN

INFANTILE COLIC CLINICAL PRESENTATION

- AGE 1-3 MONTHS
- EPISODIC CRYING
- ABSENCE OF OTHER SYMPTOMS
- IMPROVED BY REPETITIVE STIMULI
- RESOLVES AT 3-S MOS OF AGE
- ABDOMINAL PAIN
  - DRAWS LEGS UP
  - IMPROVED BY FLATUS

INFANTILE COLIC DIFFERENTIAL DIAGNOSIS

- MILK SOY PROTEIN INTOLERANCE
- GASTROESOPHAGEAL REFLUX
- CNS/METABOLIC DISORDERS.
- PARENTING PROBLEMS

GASTROESOPHAGEAL REFLUX

- INTERMITTENT LES INCOMPETENCE
- INFANT SPITS UP OR VOMITS
- MAY HAVE "HEARTBURN"
- MAY BE IRRITABLE
- MAYBE CONFUSED WITH MILK SOY INTOLERANCE

GASTROESOPHAGEAL REFLUX WHEN TO SUSPECT

- IRRITABLE BABY WITH SPITTING
- NORMAL STOOLS
- NORMAL STOOL STUDIES
  (? HEMATEST)
GASTROESOPHAGEAL REFLUX DIAGNOSIS

- 24-HOUR PH STUDY
- SCINTISCAN
- ENDOSCOPY WITH BIOPSY
- UPPER GI SERIES
  - LACKS SPECIFICITY
  - GASTRIC OUTLET ASSESSMENT

FORMULA PROTEIN INTOLERANCE CLINICAL PRESENTATION

- DIARRHEA
- BLOOD IN STOOL
- FUSSINESS, IRRITABILITY
- VOMITING

FORMULA PROTEIN INTOLERANCE OBJECTIVE FINDINGS

- ABNORMAL SIGMOIDOSCOPY
  - SPONTANEOUS FRIABILITY
  - INDUCED FRIABILITY
- ABNORMAL STOOL EXAMS
  - OCCULT BLOOD POSITIVE
- PH OCCASIONALLY <5.5

INFANTILE COLIC PURSUIT OF UNCOMMON CAUSES

- FAILURE TO THRIVE
- HISTORY DOESN'T FIT
- PRESENCE OF OTHER SYMPTOMS

INFANTILE COLIC TREATMENT

- CONFIRM DIAGNOSIS - H & P
- REASSURE PATIENTS
- GOOD FEEDING TECHNIQUES
- NO DRUG THERAPY
- NO FORMULA CHANGES

IRRITABLE COLON OF INFANCY

- CHRONIC NONSPECIFIC DIARRHEA
- TODDLER DIARRHEA
- "SLOPPY STOOL" SYNDROME

IRRITABLE COLON OF INFANCY

- AGE 5 MO TO 3 YRS
- INTERMITTENT WATERY STOOLS
- NORMAL GROWTH
- VEGETABLE PARTICLES IN STOOL
- EXACERBATED BY STIMULUS
- DISAPPEARS IN HOSPITAL
- OFTEN MISDIAGNOSED AS FOOD ALLERGY
- ALL STUDIES NORMAL
IRRITABLE COLON OF INFANCY PATHOPHYSIOLOGY
• NORMAL PHYSIOLOGY
  o SEGMENTATION CONTRACTIONS
  o GASTROCOLIC REFLEX
  o VOLUNTARY DEFECATION
• PATHOPHYSIOLOGY
  o MULTIPLE MASSIVE CONTRACTIONS
  o RECTALSPASM

DIFFERENTIAL DIAGNOSIS PRIMARY CONSIDERATIONS
• GIARDIASIS
• PROTRACTED VIRAL ENTERITIS OTHER CONSIDERATIONS
• SMALL BOWEL DISEASE
• INFLAMMATORY BOWEL DISEASE
• SECRETORY DIARRHEA

GIARDIASIS
• WATERY DIARRHEA, CRAMPY ABDOMINAL PAIN
• MALABSORPTION AND WEIGHT LOSS
• SMALL BOWEL PATHOGEN
• DIAGNOSIS - FECAL ANTIGEN
• TREATMENT - METRONIDAZOLE

CARBOHYDRATE MALABSORPTION DISACCHARIDASE DEFICIENCY
• SUCHASE-ISOMALTASE
• DEFICIENCY
• LACTASE DEFICIENCY
  o PRIMARY
    ▪ CONGENITAL
    ▪ ACQUIRED
  o SECONDARY

SECONDARY LACTASE DEFICIENCY
• VIRAL ENTERITIS
• GIARDIASIS
• CELIAC DISEASE
• MILK AND SOY INTOLERANCE
• INTRACTABLE DIARRHEA OF INFANCY
• SHORT BOWEL SYNDROME
• IMMUNODEFICIENCY DISORDERS
• SEVERE MALNUTRITION

CELIAC DISEASE
• CAUSE
• GLUTEN INTOLERANCE
• SYMPTOMS
  o WEIGHT PREDOMINANT FTT, ANOREXIA
  o DIARRHEA, CHARACTERISTIC P.E.
• SCREENING
  o ANTIBODIES
• TREATMENT
  o GLUTEN-FREE DIET FOR LIFE
PROTRACTED VIRAL ENTERITIS

- Insult
  - Viral Enteritis
- Problem
  - Prolonged mucosal damage
- Factor
  - Hypertonic feedings
- Treatment
  - High fat diet

OTHER DISORDERS

- Ulcerative colitis
  - Bloody diarrhea, weight loss
- Tumors
  - VIP, neuroblastoma
  - Continuous H2O stools
  - Weight loss

TODDLER DIARRHEA CLINICAL APPROACH

- Careful H & P
- High fat diet
- Restrict beverages
- Studies if no response

IRRITABLE COLON OF INFANCY TREATMENT

- High fat diet
  - Low osmolality
  - Ileal brake
- Limit liquid to whole milk, H2O
- No-medications
- Explanation & reassurance

CHRONIC RECURRENT ABDOMINAL PAIN IN CHILDHOOD SCHOOL-AGE CHILDREN

- Incidence - 10%
- Causes
  - Chronic recurrent abdominal pain syndrome - 95%
  - Organic disorders - 6%

CHRONIC RECURRENT ABDOMINAL PAIN IN CHILDHOOD APLEY CRITERIA

- Recurrent episodes over at least three months
- At least three episodes
- Severe enough to affect activity
- Age range - 3 to 15 years
- Absence overt organic disease

ABDOMINAL PAIN IN CHILDHOOD CHARACTERISTICS TO ELICIT

- Type
- Location
- Duration
- Associated symptoms
- Personality characteristics
- Socioenvironmental factors
FUNCTIONAL ABDOMINAL PAIN CHARACTERISTIC DESCRIPTIONS

CRAMPY PAIN 67%
ACUTE SPASMS 15%
DULL ACHE 18%

FUNCTIONAL ABDOMINAL PAIN CHARACTERISTIC LOCATION
• PERIUMBILICAL
  o MOST PATIENTS
• MIDEPIGASTRIC
  o SOME PATIENTS
• AIGHT LOWER QUADRANT
  o UNCOMMON, THINK OF CROHN'S
• LEFT UPPER QUADRANT, RIGHT UPPER QUADRANT
  o UNUSUAL

FUNCTIONAL ABDOMINAL PAIN DURATION

5-60 MINUTES 37%
1-3 HOURS 36%
> 3 HOURS 27%

FUNCTIONAL ABDOMINAL PAIN ASSOCIATED PHENOMENON

OCCASIONAL EMESIS 67%
PALLOR 50%
HEADACHES 20%
SLEEPY AFTER ATTACK 25%
FEVER ONLY 5%
DIARRHEA ONLY 4%

FUNCTIONAL ABDOMINAL PAIN CHARACTERISTIC PERSONALITIES
• BRIGHT, COMPULSIVE, "PLEASER"
• PERCEIVED AS INADEQUATE
• OTHERWISE NORMAL

FUNCTIONAL ABDOMINAL PAIN PSYCHOLOGICAL FACTORS
• ENVIRONMENTAL STRESSES
• ILLNESS IN FAMILY
• FAMILY HISTORY OF IRRITABLE BOWEL SYNDROME

FUNCTIONAL ABDOMINAL PAIN CHARACTERISTIC PHYSICAL FINDINGS
• NORMAL GROWTH AND DEVELOPMENT
• OCCASIONAL MILD, SUBJECTIVE TENDERNESS
• NORMAL PERIANAL EXAM

FUNCTIONAL ABDOMINAL PAIN DIFFERENTIAL DIAGNOSIS
• PEPTIC ULCER DISEASE
  o HELICOBACTER PYLORI
• CROHN'S DISEASE
• PRIMARY ACQUIRED LACTASE DEFICIENCY
• GENITOURINARY DISORDERS
HELICOBACTER PYLORI

- COMMON CAUSE OF PUD
- SYMPTOMS
  - SAME AS PUD
- DIAGNOSIS
  - BIOPSY, OTHER
- TREATMENT
  - MULTIPLE DRUGS

HELICOBACTER PYLORI ASSOCIATED WITH
- GASTRITIS - YES
- DUODENAL ULCERS - PROBABLY
- GASTRIC ULCERS - MAYBE
- ABDOMINAL PAIN, NAUSEA, VOMITING
- MIDEPIGASTRIC PAIN, TENDERNESS

PEPTIC ULCER DISEASE
- DULL, ACHING PAIN
- MIDEPIGASTRIC LOCATION
- IMPROVES AFTER MEALS
- WORSENS 1-2 HOURS AFTER MEALS
- AWAKENS AT NIGHT
- VOMITING, BLEEDING
- DIAGNOSIS - ENDOSCOPY
- TREATMENT: H2BLOCKERS

RADIOGRAPHIC STUDIES
PUD OR GASTRITIS
- LARGELY REPLACED BY ENDOSCOPY
- DEMONSTRATE ONLY GROSS LESIONS
- OFTEN OVER-READ
- OFTEN LEAD TO MORE CONFUSION

ABDOMINAL PAIN: INDICATIONS FOR ENDOSCOPY
- MIDEPIGASTRIC PAIN & TENDERNESS
- PAIN AWAKENING AT NIGHT, VOMITING
- BLEEDING
- PAIN RELIEVED BY MEALS, ANTACIDS
- CHRONIC NAUSEA AND MIDEPIGASTRIC DISCOMFORT

CROHN'S DISEASE
- CHRONIC IBD
- RARE UNDERAGE 5
- COMMONLY AFFECTS ILEUM AND RIGHT COLON
- PERIANAL DISEASE - 60%
- GROWTH FAILURE COMMON
- 20% HAVE NORMAL ESR

CROHN'S DISEASE: CLINICAL PRESENTATION
- CRAMPY RIGHT LOWER QUADRANT ABDOMINAL PAIN
- FEVER DIARRHEA
- WEIGHT LOSS
CROHN’S DISEASE: EVALUATION
- UPPER GI WITH SBS
  - TERMINAL ILEAL EXAM IMPORTANT
- BE-AIR CONTRAST
- COLONOSCOPY W/MULTIPLE BIOPSIES
  - HISTOLOGY SIMILAR TO UC
  - 13RANULOMAS DIAGNOSTIC
  - DIFFICULT TO DIFFERENTIATE IN CHILDREN - 10%

PRIMARY ACQUIRED LACTASE DEFICIENCY
- CRAMPY ABDOMINAL PAIN, FLATULENCE
- GENETIC PREDISPOSITION
- OCCURS AFTER AGE 10
- CURED WITH MILK-FREE DIET
- OFTEN NOT CAUSE OF PAIN

PRIMARY ACQUIRED LACTASE DEFICIENCY DIAGNOSIS
- LACTOSE BREATH HYDROGEN TEST
- LACTOSE TOLERANCE TEST
- THERAPEUTIC TRIAL
  - BEWARE OF PLACEBO EFFECT

GASTROESOPHAGEAL REFLUX
- INAPPROPRIATE LES RELAXATION
- ACID REFLUX INTO ESOPHAGUS
- SUBSTERNAL PAIN, EMESIS
- MIDEPIGASTRIC TENDERNESS
- HISTORY OF SPITTING AS INFANT
- DX - PH STUDY, ENDOSCOPIC BX
- TREATMENT - ACID SUPPRESSION

GENITOURINARY TRACT DISEASE
- COMMON CAUSE OF ABDOMINAL PAIN
- OBTAIN U/A, C & S, COLONY COUNT
- CONSIDER ULT19ASOUND AS PRIMARY IMAGING STUDY

CHILD WITH ABDOMINAL PAIN CLINICAL APPROACH
- CAREFUL H & P, GROWTH RECORD
- SCREENING STUDIES AS APPROPRIATE
  - CBC, SED RATE, U/A, URINE CULTURE, ST00L GUAIAC
- EVALUATION BASED ON SYMPTOMS AND SCREENING STUDIES

CHILD WITH ABDOMINAL PAIN COUNSELING SUGGESTIONS
- TREAT AS ORGANIC DISEASE
- DO NOT USE "PSYCHOSOMATIC" OR "PSYCHOLOGICAL"
- DO NOT MEDICATE
- DEMAND SCHOOL ATTENDANCE
- ENCOURAGE ACTIVITY
- HIGH RESIDUE DIET
- PSYCH REFERRAL - CAUTION
CHILD WITH ABDOMINAL PAIN TERMS TO AVOID
- BEHAVIORAL
- PSYCHOLOGICAL
- PSYCHOSOMATIC
- STRESS-RELATED

CHILD WITH ABDOMINAL PAIN MAJOR MISTAKES
- TRIAL OF H2 BLOCKERS
- REFERRAL TO PSYCHIATRIST OR PSYCHOLOGIST FOR DIAGNOSIS
- LIGHT DISMISSAL OF COMPLAINT

ABDOMINAL PAIN IN CHILDREN SUMMARY
- 95% ARE FUNCTIONAL
- EVALUATION BASED ON HISTORY AND EXAM
  - PUD, CD, LACTOSE INTOLERANCE, GU DISORDERS
- TREATMENT
  - REASSURANCE, COUNSELING
  - DIET

ENCOPRESIS: TYPES
- WITH CONSTIPATION (93%)
  - TREATMENT REWARDING
- WITHOUT CONSTIPATION (7%)
  - TREATMENT DIFFICULT

ENCOPRESIS WITH CONSTIPATION PSYCHOLOGY
- PAINFUL BOWEL MOVEMENTS
- WITHHOLDING STOOL
- COLONIC DILATATION, IMPACTION
- IMPAIRED SENSATION
- OVERFLOW INCONTINENCE

ENCOPRESIS NECESSARY STUDIES
- CAREFUL H & P - ESSENTIAL
- RECTAL BIOPSY - RARELY
- BARIUM ENEMA - RARELY

RECTAL BIOPSY FOR HIRSCHSPRUNG'S DISEASE INDICATIONS
- SEVERE CONSTIPATION SINCE FIRST YEAR OF LIFE
- DELAYED MECONIUM PASSAGE
- SUGGESTIVE PHYSICAL EXAMINATION
- ABSENCE OF SOILING

ENCOPRESIS SUGGESTED MANAGEMENT
- HALEY’S M.O.
  - 2 OZ 4/DAY X 3 DAYS
  - THEN 2 OZ Q.H.S.
- UP EARLY, BREAKFAST Q DAY
- ON TOILET AFTER EACH MEAL
- FOLLOW-UP 1 MONTH, THEN PRN
ENCOPRESIS MANAGEMENT LATER STAGES
- Usual treatment 6 mos to 2 yrs
- Taper medication slowly
  - Begin when no soiling x 2-3 mos
  - Reinstitute immediately if soiling occurs
- Increase fiber intake when tapering initiated

ENCOPRESIS DIETARY MODIFICATIONS
- Increased fiber intake
- Use medications primarily
- Fluid administration not important

SUMMARY
- Infantile colic
  - Pain
- Irritable colon of infancy
  - Diarrhea
- Recurrent abdominal pain
- Encopresis
REFERENCES


2. Crowcroft N. Effectiveness of treatments for infantile colic. Findings apply only to the most severely affected infants. BMJ 1998;317(7170):1451.


