

## 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 PARENTS
- 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
  - SEGMENTATION CONTRACTIONS
  - GASTROCOLIC REFLEX
  - VOLUNTARY DEFECATION
- PATHOPHYSIOLOGY
  - MULTIPLE MASSIVE CONTRACTIONS
  - 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
  - PRIMARY
    - CONGENITAL
    - ACQUIRED
  - 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
  - WEIGHT PREDOMINANT FTT, ANOREXIA
  - DIARRHEA, CHARACTERISTIC P.E.
- SCREENING
  - ANTIBODIES
- TREATMENT
  - 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 H<sub>2</sub>O 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, H<sub>2</sub>O
- 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% |
| ACUTESPASMS | 15% |
| DULL ACHE   | 18% |

## FUNCTIONAL ABDOMINAL PAIN CHARACTERISTIC LOCATION

- PERIUMBILICAL
  - MOST PATIENTS
- MIDEPIGASTRIC
  - SOME PATIENTS
- AIGHT LOWER QUADRANT
  - UNCOMMON, THINK OF CROHN'S
- LEFT UPPER QUADRANT, RIGHT UPPER QUADRANT
  - 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 BOWELSYNDROME

## 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
  - 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 SIGNS AND SYMPTOMS
- 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, STOOL GUAIC
- 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 H<sub>2</sub> 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

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