ENCOPRESIS

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ENCOPRESIS

- Introduction
  - Definition
  - Classification
- Elements
  - Constipation
  - Stool Retention
  - Incontinence
  - Development and Behavior
    - Toilet training
    - Other potentiators
- Evaluation
- Management

ENCOPRESIS[1]

- Repeated passage of feces into inappropriate places such as clothing or floor
- Age ≥ 4 years – chronological or mental
- Involuntary *or* intentional
- Not due to an organic disorder or medication
- At least once a month for ≥ 3 months

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders 4th ed. (DSM-IV).* Washington, DC: American Psychiatric Association; 1994:106-110.

ENCOPRESIS

- Affects 1-3 % of children
- Boys > girls (estimated at 4-6:1)[2]
- Most accidents occur later in day (3-7 PM)[2]
- Primary (continuous): child has never completed toilet training for stool
- Secondary (discontinuous): toilet trained child regresses to incontinence

2. Levine MD. Encopresis. In: Levine MD, Carey WB, Crocker AC, eds. Developmental-Behavioral Pediatrics. Philadelphia: Saunders; 1983: 586-95.

ENCOPRESIS

- Retentive (80-95%): involves
  - Constipation
  - Stool retention
  - Overflow incontinence
- Nonretentive or "solitary"(5-20%)[3]:
  - No constipation or overflow incontinence
  - Stool toileting refusal/resistance/"phobia"
  - Often manifestation of emotional disturbance
- Virtually all children with encopresis retain stools at least intermittently[4]

3. Kuhn BR et al. *Am Family Physician* 1999; 59(8): 312-17.
4. Levine MD. *Pediatr Rev.* 1981; 2:285.

EPIDEMIOLOGY[5]

INCIDENCE

Overall children	1.5 %
School children aged 6-12	1.5-7.5%[13]
4 y/o	2.8 %
5 y/o	2.2 %
6 y/o	1.9 %
7 y/o	1.5 %
Gen Peds clinics	3.0 %
Child Ψoutpts.	5.7 %
Child Ψ inpts.	8.0 %
Peds GI clinics	25 %

- Incidence & prevalence decrease with age
- More prevalent in boys
- Prevalence reverses in elderly
- 16% of affected children have one affected parent
- All socioeconomic classes

5. Boon FL and Singh NN. *Behav Modif* 1991; 15(3): 355-71.

13. McGrath ML et al., *J Pediatr Psychol* 2000; 25(4): 225-54.

ELEMENTS of ENCOPRESIS

- Constipation
- Stool retention
- Incontinence
- Development and Behavior
  - Toilet training
  - Other risk factors

CONSTIPATION
Differential Diagnosis

- FUNCTIONAL (≥95%)
- Intestinal
  - Hirschprung's disease
  - Celiac disease
  - Anal stricture/stenosis
  - Anterior dislocation of the anus
  - Imperforate anus
  - Meconium ileus equivalent (CF)
  - Pseudo-obstruction
  - Pre-sacral mass
- Metabolic
  - Hypothyroidism
  - Hypokalemia
  - Hypercalcemia
  - Dehydration
- Drugs
  - Opiates
  - Antidepressants
  - Anticholinergics
  - Lead poisoning
- Neuromuscular
  - Spinal cord lesion
  - Hypotonia
  - CP

CONSTIPATION
Evaluation

- History
  - Onset
  - Stool character
  - Encopresis
  - Toilet training
  - Stool size
  - GI sx (abd pain, N/V)
  - Diet/appetite
  - Growth
  - Family Hx
- Physical
  - Abdominal distention
  - Palpable stool masses
  - Anal tone
  - Stool in vault
  - Neurologic
- Laboratory
  - Barium enema
  - Rectal biopsy
  - Anorectal manometry
  - Blood tests

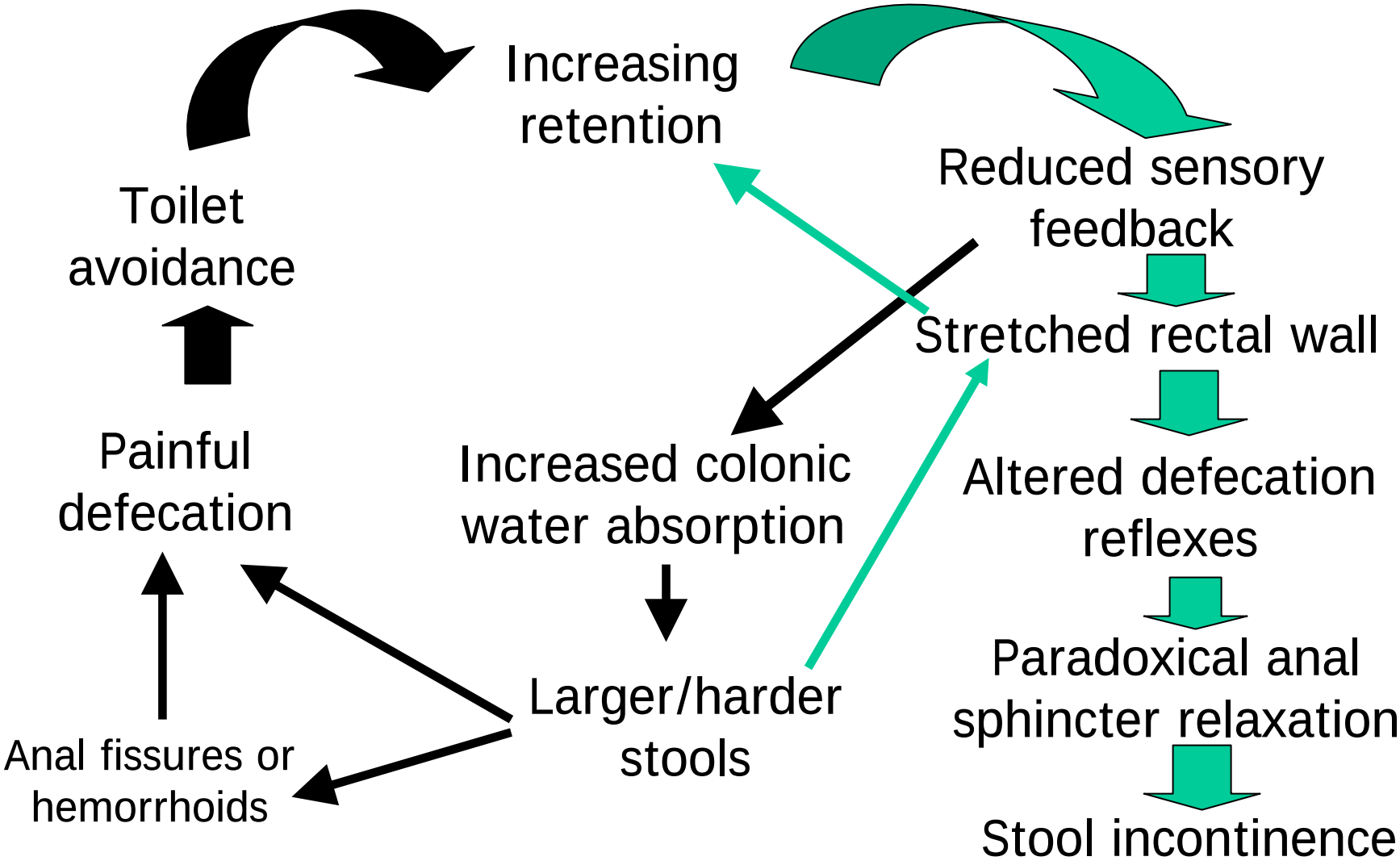
CONSTIPATION

Red Flags for Organic Causes

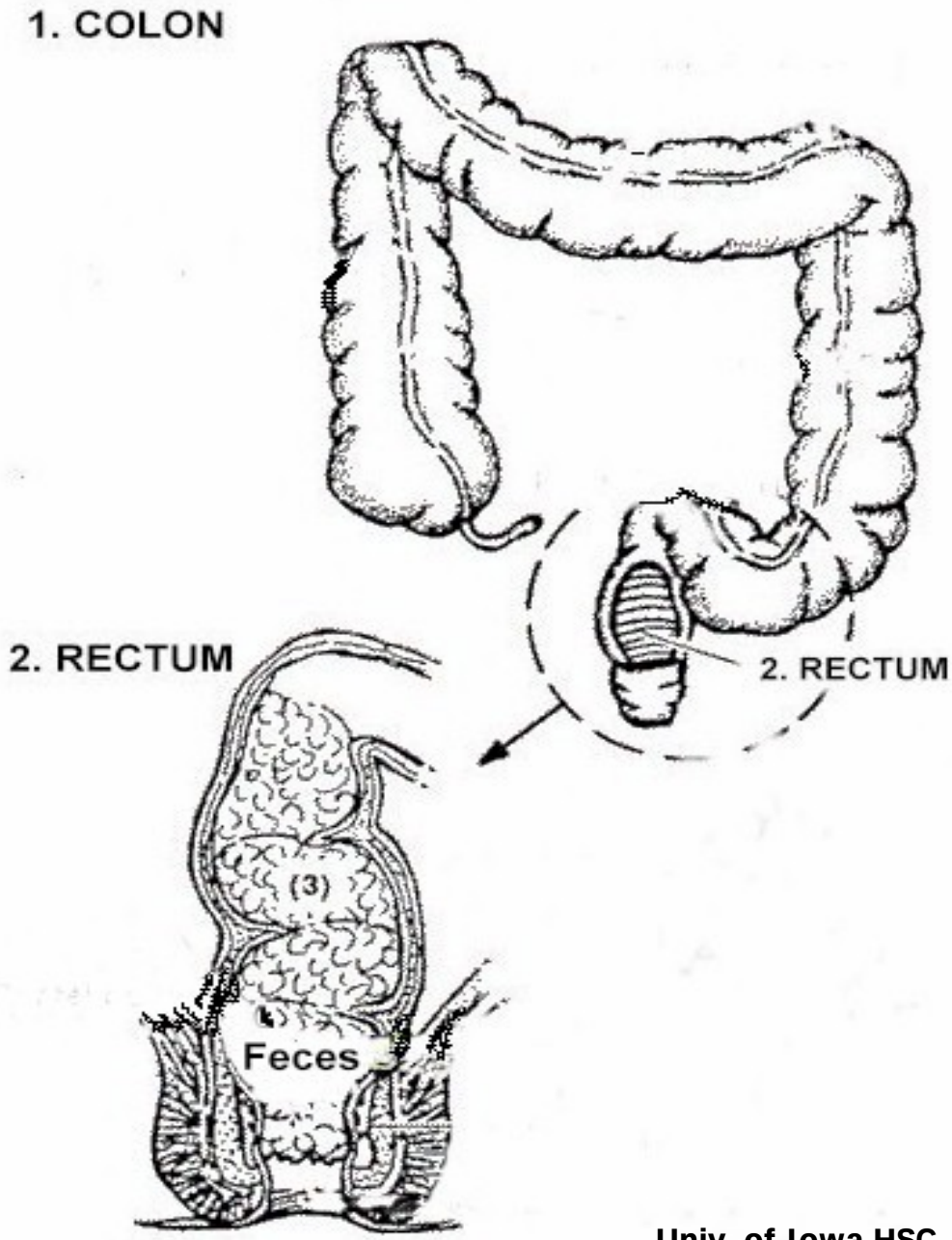
- **Failure to thrive**
- **No withholding**
- **No soiling**
- Extraintestinal symptoms
- No response to conventional treatment

- Flat buttocks
- Spinal dimple/tuft
- Patulous anus
- Abdominal distention
- Tight, empty rectum
- Gush of liquid stool/air from rectum upon withdrawal
- Occult blood in stool
- Absent anal wink
- Decreased LE tone/strength

STOOL RETENTION



STOOL RETENTION



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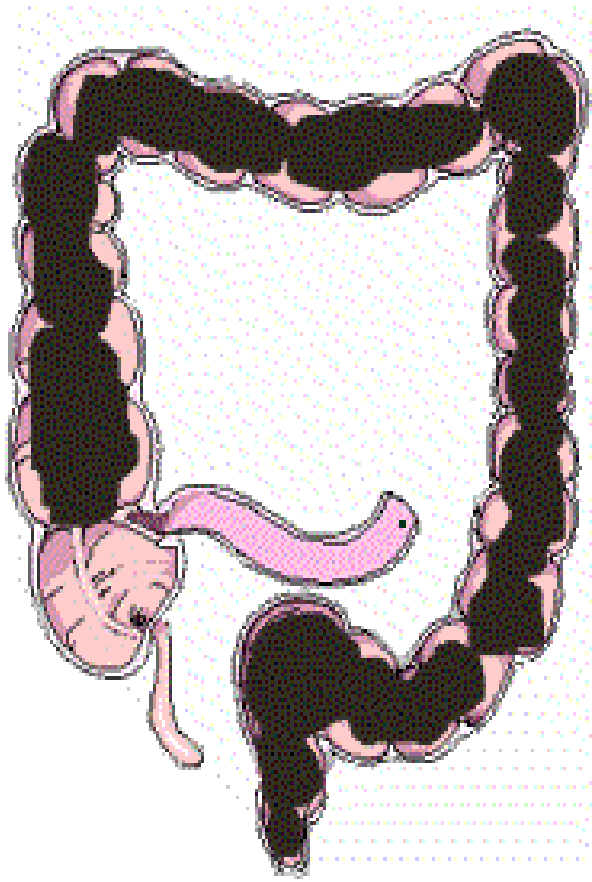
INCONTINENCE

- In presence of large fecal mass
  - Anal sphincter relaxes
    - In response to arrival of more stools OR
    - When child tries to pass gas OR
    - When muscles used to withhold are used in other activities
  - Stool, usually soft or liquid, leaks out around impaction



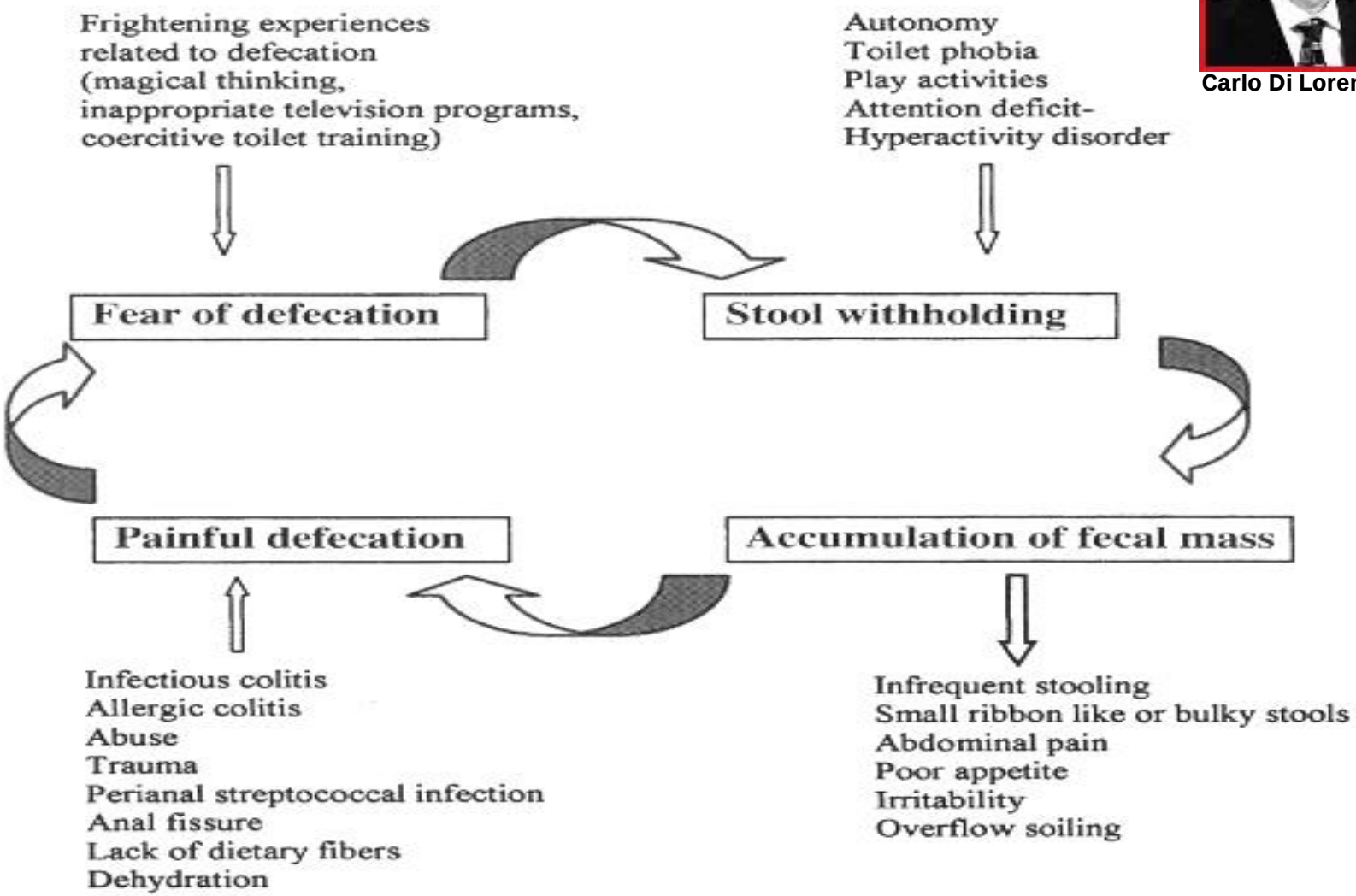
PHYSIOLOGICAL CORRELATES[6]

- Contractile status of anal sphincter
- Investigated with multiple modalities
  - Rectal balloon defecation test
  - Anal electromyography
  - Anorectal manometry
- Conflicting reports
- Primary disorder vs. Secondary to chronic stool retention

6. Mikkelsen EJ. *J Am Acad Child Adol Psych* 2001; 40(10): 476-501.

FUNCTIONAL CONSTIPATION
Pathogenetic Model[10]


Carlo Di Lorenzo, MD



10. Di Lorenzo C. *Gastroenterology Clinics* 2001: 30(1).

DEVELOPMENTAL MODEL

Stages in Pathogenesis of Encopresis[2]

- Stage I
  - Infancy and toddler years
  - Early experience and constitutional predisposition
- Stage II
  - 3-5 years old
  - Toilet training and early autonomy
- Stage III
  - Early school years
  - Function in new environments

Melvin D. Levine, MD

2. Levine MD. Encopresis. In: Levine MD, Carey WB, Crocker AC, eds. Developmental-Behavioral Pediatrics. Philadelphia: Saunders; 1983: 586-95.

DEVELOPMENTAL MODEL[2]

- Multiple risk factors interplay with one another
- Presence of multiple risk factors increases child's vulnerability to developing encopresis
- Accumulation of risk factors POTENTIATES the problem
- Each of the 3 stages has its own set of inherent potentiators of encopresis

2. Levine MD. Encopresis. In: Levine MD, Carey WB, Crocker AC, eds. Developmental-Behavioral Pediatrics. Philadelphia: Saunders; 1983: 586-95.

Stage 1

Infancy and toddler years

- Simple constipation
- Early colonic inertia
- Congenital anorectal problem
- Other anorectal conditions
- Parental overreaction
- Coercive interventions→ “the anal stamp”

Stage 2
Training & early autonomy

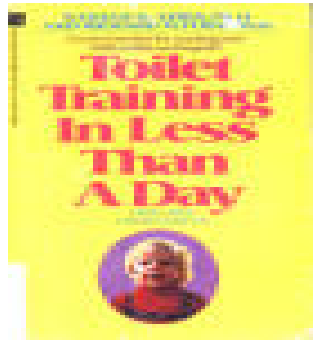
- Anxiety over sitting on toilet
- Magical thinking and fears
  - Falling in
  - Toilet flooding
  - Monsters and snakes
- Overly coercive or permissive training
- Other areas of autonomy conflict
- Painful or difficult defecation

TOILET TRAINING

- Bowel control
  - No longer involuntary leakage of stool from rectum
  - Not categorized as daytime or nighttime control
- Most U.S. children fully trained between 24-48 months of age
- No universal timeline for process
  - Two divergent approaches have been widely advocated

TOILET TRAINING

Approaches



- Structured-behavioral
  - Azrin & Foxx, *Toilet Training in Less than a Day* (1974)
  - Endpoint-oriented
  - Teaching/eliciting chain of independent toileting behaviors
- Child-oriented
  - Brazelton (1962)
  - Gradual, developmental
  - Response to child's signals of toileting readiness
  - Favored by AAP and more widely used

T. Berry Brazelton, MD

AAP GUIDELINES[7]

- Suggest parents
  - avoid forcing or pushing child into training
  - look for signs of readiness for mature toileting
  - seek support & guidance from healthcare provider
- No universal right age to begin or deadline to complete training
- Emphasize that toilet training is key developmental milestone
  - Acknowledge roles of parents, caretakers, and daycare providers

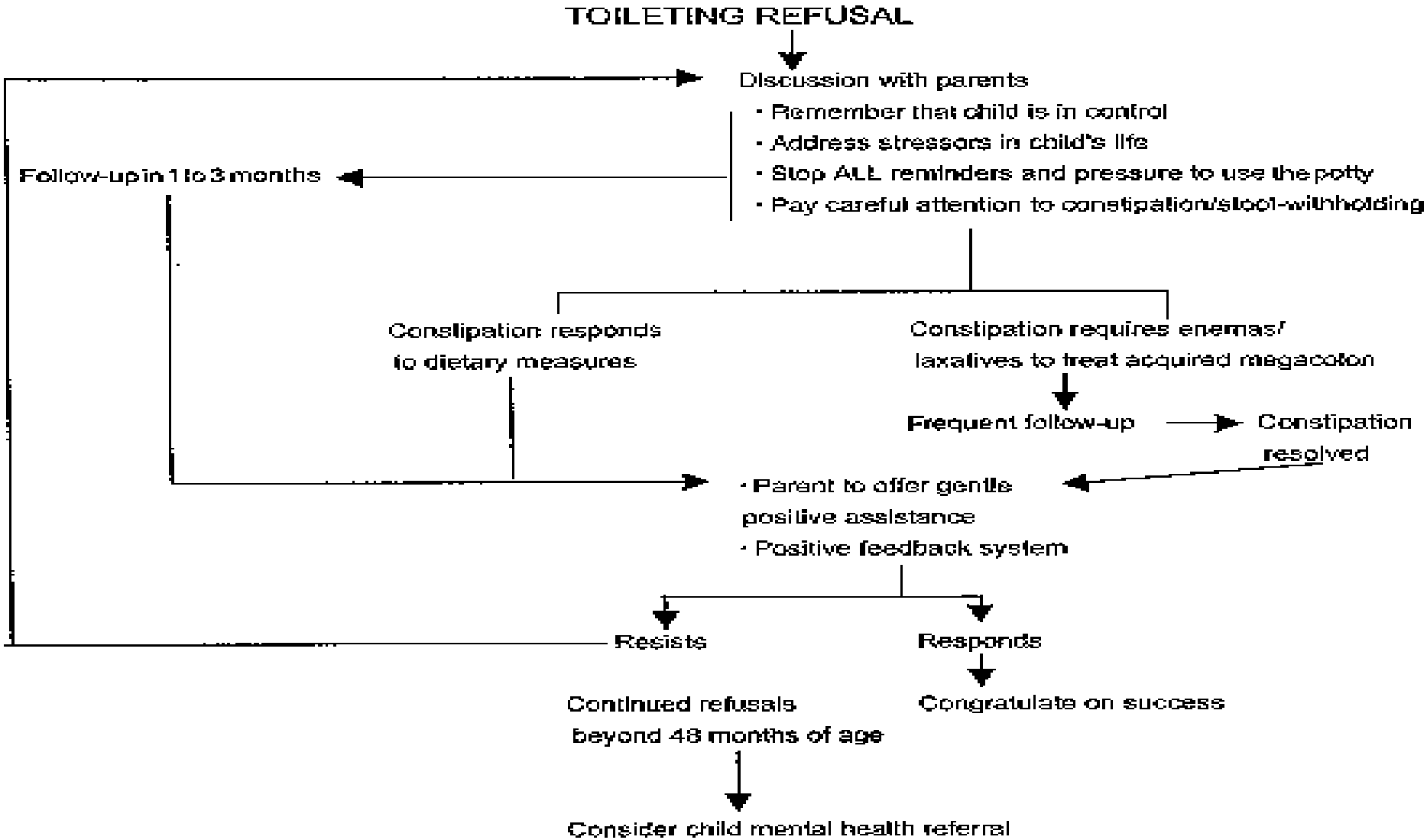
7. Stadtler, AC, Gorski PA, Brazelton TB. *Pediatrics* 1999; 103(6).

SIGNS OF READINESS[7,8]

- Imitates parents' behavior
- Expresses interest in toileting
- Begins to put things where they belong
- Indicates when wetting or soiling
- Walks well
- Can sit down on potty chair
- Able to undress and dress
- Can communicate need to "go"
- Can follow one and two-step commands
- Demonstrates independence by saying "no"
- Desires to please based on positive relationship w/caregiver

7. Stadtler, AC, Gorski PA, Brazelton TB. *Pediatrics* 1999; 103(6). 8. Michel RS. Ped Rev 1999; 20(7): 240-45.

8. Michel RS. *Ped Rev* 1999; 20(7): 240-45.



8. Michel RS. *Ped Rev* 1999; 20(7): 240-45.

Stage 3
Extramural function

- Avoidance of school bathrooms
- Prolonged gastroenteritis
- Dietary issues
  - Lactose intolerance
  - Overconsumption of milk and chocolate
- Attention deficit and task impersistence
- Frenetic lifestyles
- Psychosocial stressors

CO-MORBID ASSOCIATIONS[5,11]

- **Low self-esteem**
- **Social withdrawal**
- **Depression**
- **Anxiety**
- **“Neurosis”**
- **Learning disabilities**
- **Attentional dysfunction**
- **ADHD**
- **Conduct disorder**
- **Child abuse (victims)**
- **Enuresis**

5. Boon FL and Singh NN. *Behav Modif* 1991; 15(3): 355-71.

11. Johnston BD and Wright JA. *Dev Behav Pediatrics* 1993; 14(6): 381-84.

ENCOPRESIS and ADHD[11]

- Child with ADHD more likely to have encopresis than normal
- Task impersistence (Levine): child seldom finishes what he starts, including defecation
- Deficient self-monitoring
  - Less responsive to rectal distention
  - Less likely to act on physical cues
- Poor prioritization
- Poor reinforceability
- Suggested association, but few studies
  - 23% of encopretic children scored >98th %ile on hyperactivity subscale of Child Behavior Checklist
  - 30% of untreated encopretics scored in clin. sig. range of hyperactivity on Conner's scale
- Constipation is side effect of stimulants and TCAs

11. Johnston BD and Wright JA. *Dev Behav Pediatrics* 1993; 14(6): 381-84.

ENCOPRESIS and Child Abuse[12]

- Significant physical abuse as punishment for soiling
- Victims of sexual abuse
  - Anal penetration and subsequent trauma
  - Damage to anal sphincter
  - Painful defecation and retention cycle

12. Buttross S, *Pediatr Ann* 1999; 28(5):317-21.

ENCOPRESIS and ENURESIS

- Distended rectum can compromise bladder function[2]
  - Usually causes dribbling
  - Treatment of stool retention usually treats this
- 15-25% of children with enuresis also have encopresis[14]
- Prevalence of enuresis in children with encopresis varies among studies[2]
- Obstructive uropathy secondary to obstipation
- In girls, UTI secondary to soiling of perineum

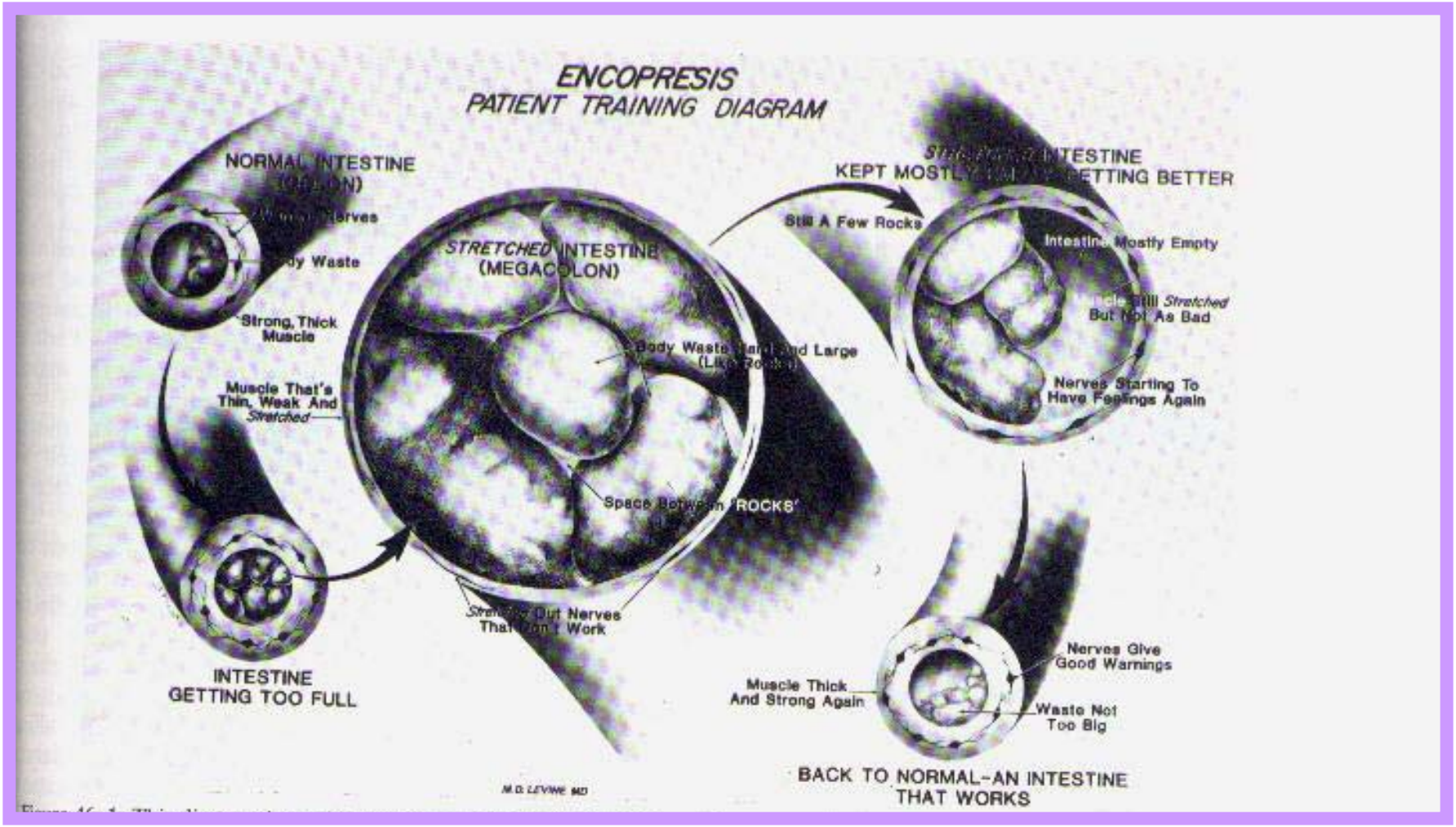
2. Levine MD. Encopresis. In: Levine MD, Carey WB, Crocker AC, eds. Developmental-Behavioral Pediatrics. Philadelphia: Saunders; 1983: 586-95.

14. Issenman RM et al., *Pediatrics* 1999; 103 (6): 1346-52.

MANAGEMENT

- Initial counseling
- Initial cleanout
- Maintenance therapy
  - Lessen stool retention
  - Restore regular bowel habits
  - Maintain soft stools
  - Restore neuromuscular function
  - Heal emotional scars
- Follow-up

PATIENT EDUCATION



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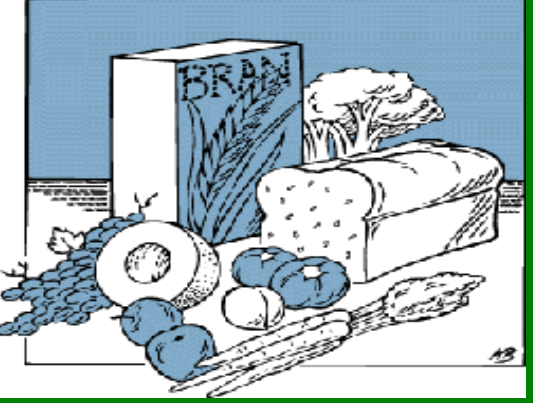

TREATMENT

- Cleanout
  - Cycles of enemas, suppository, laxative
  - Inpatient if severe or complicated
- Maintenance
  - Regular toileting routine – same times each day
  - Dietary fiber and increased water intake
  - Laxatives
    - Osmotic: M.o.M., lactulose
    - Stimulant – bisacodyl, senna
  - Stool softeners – Colace
- Continue for prolonged period (≥ 6 months)

REFRACTORY ENCOPRESIS

- Enlist help of parents and teachers
- Behavioral counseling
- Biofeedback programs
- Psychological or psychiatric referral
  - Nonretentive encopresis resistant to treatment
  - Family psychopathology
  - Parental sabotage of treatment
- Requires pediatric tenacity