Lactante vomitador

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Generalidades

- Múltiples etiologías
- Orientación según estrato etario
- Enfrentamiento basado en descarte de patologías graves

Definiciones

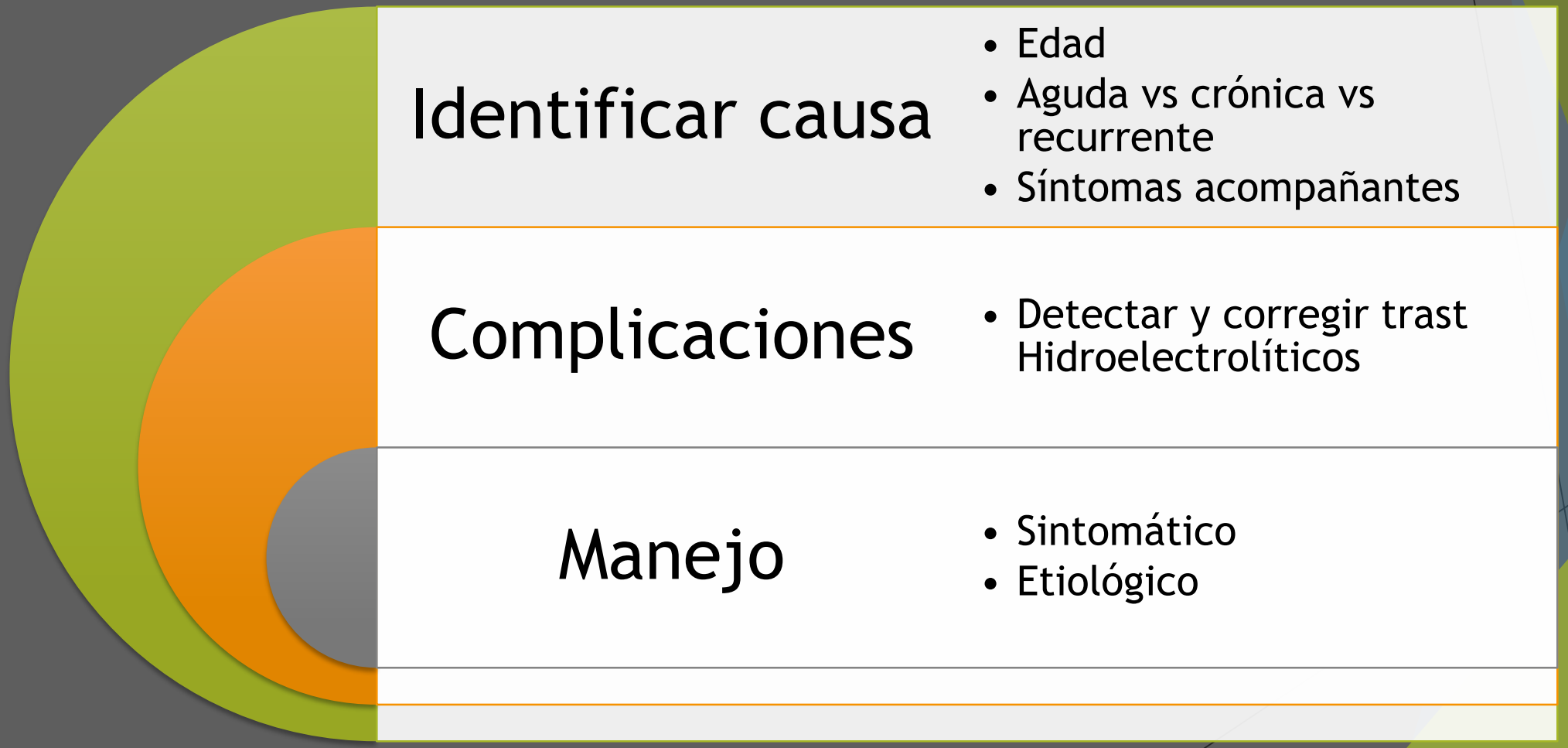
Vomiting	Forceful oral expulsion of gastric contents associated with contraction of the abdominal, diaphragmatic, and chest wall musculature
Nausea	The unpleasant sensation of the imminent need to vomit, usually referred to the throat or epigastrium; a sensation that may or may not ultimately lead to the act of vomiting
Regurgitation	The act by which food is brought back into the mouth without the abdominal and diaphragmatic muscular activity that characterizes vomiting
Anorexia	Loss of desire to eat, that is, a true loss of appetite
Sitophobia	Fear of eating because of subsequent or associated discomfort
Early satiety	The feeling of being full after eating an unusually small quantity of food
Retching	Spasmodic respiratory movements against a closed glottis with contractions of the abdominal musculature without expulsion of any gastric contents, referred to as "dry heaves"
Rumination	Chewing and swallowing of regurgitated food that has come back into the mouth through a voluntary increase in abdominal pressure within minutes of eating or during eating

Fisiopatología

- Principales receptores de NT
  - Muscarínico (M1)
  - Dopamina (D2)
  - Histamina (H1)
  - Serotonina (5-HT 3)
  - Sustancia P (neuroquinina 1).

- **Vías**
  - Vía aferente vagal: sobredistensión, intoxicación alimentaria, irritación de la mucosa, fármacos citotóxicos, y radiación.
    - Antag Re 5-HT 3
  - Área postrema: barrera sangre-cerebro relativamente permeable, tóxicos
    - Re M1, D2, 5-HT 3 , y 1 receptores de neuroquinina
  - sistema vestibular: Irritación o inflamación del laberinto
    - Re H1
  - Amígdala: náuseas

Enfrentamiento



Evaluación inicial

- Síntomas y signos de alarma que obligan descarte de patologías y evaluación por especialista

Increased possibility of an underlying systemic or metabolic disorder: Concerning signs	Comments or diagnostic considerations
Nonspecific symptoms	
Prolonged vomiting ▪ >12 hours in a neonate ▪ >24 hours in children <2 years ▪ >48 hours in older children	▪ Concerns for fluid and electrolyte abnormalities ▪ Increased possibility of underlying systemic or metabolic disorder
Profound lethargy	▪ Increased possibility of an underlying systemic or metabolic disorder
Significant weight loss	▪ Increased possibility of an underlying systemic or metabolic disorder
Symptoms of GI obstruction or disease	
Bilious vomiting	Intestinal obstruction, especially in a neonate
Projectile vomiting	▪ Pyloric stenosis in a young infant (3 to 6 weeks of age) ▪ Intestinal obstruction, cyclic vomiting syndrome
Hematemesis	▪ Severe hematemesis suggests esophageal varices. ▪ Milder hematemesis may be due to injury to the esophagus (Mallory-Weiss tear) or stomach (prolapse gastropathy), due to recurrent vomiting.
Hematochezia	Intussusception (especially in infants and toddlers), infectious colitis, or IBD
Marked abdominal distension, peritoneal signs	Intestinal obstruction or intra-abdominal process (eg, appendicitis, obstruction)
Symptoms or signs suggesting neurologic or systemic disease	
Bulging fontanelle (infant)	Hydrocephalus or meningitis
Headache, positional triggers for vomiting or vomiting on awakening, lack of nausea	Increased intracranial pressure (eg, CNS mass, hydrocephalus, or pseudotumor cerebri)
Altered consciousness, seizures, or focal neurologic abnormalities	Toxic ingestion, diabetic ketoacidosis, CNS mass, or inborn error of metabolism
History or physical signs of trauma	Intracranial or intra-abdominal injury (eg, duodenal hematoma)
Hypotension disproportionate to apparent illness, and/or hyponatremia with hyperkalemia	Adrenal crisis

Anamnesis

- Alimentación: Cantidad/frecuencia (sobrealimentación).Técnica, Posición/comportamiento durante la alimentacion
- Patrón de los vómitos: Aspecto (contenido). Relación con la ingesta. Frecuencia/cantidad. Horario.
- Síntomas asociados
- Exposición
- Medicamentos o sustancias tóxicas

Symptoms	Diagnostic considerations
History	
Contacts with vomiting or diarrhea	▪ Gastroenteritis
Acute onset of diarrhea and fever	▪ Viral gastroenteritis (if typical features) ▪ Infection (sepsis, infectious enteritis/colitis, appendicitis, IBD) ▪ Hirschsprung-associated enterocolitis
Early morning vomiting	▪ Pregnancy (adolescent females), increased ICP, or cyclic vomiting syndrome
Vomiting without nausea	▪ Increased ICP
Effortless vomiting	▪ Gastroesophageal reflux ▪ Rumination syndrome
Chronic or recurrent infections	▪ Immunodeficiency ▪ Tracheoesophageal fistula (infant with recurrent pneumonia)
Periodic episodes of vomiting	▪ Cyclic vomiting syndrome ▪ Inborn error of metabolism ▪ Migraine (usually with headache and family history) ▪ Porphyria, carcinoid, pheochromocytoma, familial dysautonomia
Vomiting triggered by specific foods	
Vomiting begins within minutes to two hours of ingesting the food, usually with cutaneous or respiratory symptoms	▪ Food allergy (eg, anaphylaxis)
Subacute or chronic, with diarrhea	▪ Food protein-induced enteropathy or FPIES
Triggered by introduction of lactose	▪ Galactosemia
Triggered by introduction of fructose or sucrose	▪ Hereditary fructose intolerance
Undigested food in vomitus	▪ Achalasia
Heartburn	▪ Esophagitis (peptic or eosinophilic)

Examen físico

- General: grado de hidratación, estado nutricional, presencia de palidez o ictericia
- Abdominal: distensión, dolor, masa, megalia, signos de obstrucción
- Neurológico
- Otros: genitales, olor

Physical examination	
Marked abdominal distension; visible bowel loops; bilious vomitus (green or yellow); absent bowel sounds or increased high-pitched bowel sounds ("borborygmi"); or feculent (with the odor of feces)	▪ Intestinal obstruction
Focal tenderness	▪ RLQ: Appendicitis or Crohn disease ▪ RUQ: Gallbladder disease, pancreatitis ▪ Costovertebral angle: Pyelonephritis ▪ Epigastric: Pancreatitis, peptic ulcer disease/gastritis
Hepatomegaly, splenomegaly, jaundice	▪ Hepatitis, viral infection (eg, EBV), metabolic disorders
Ataxia, dizziness, nystagmus	▪ Vestibular neuronitis or acute cerebellar ataxia
Papilledema	▪ Increased ICP
Ambiguous genitalia	▪ Congenital adrenal hyperplasia with vomiting due to adrenal crisis
Unusual odor	▪ Inborn error of metabolism
Enlarged parotid glands	▪ Bulimia

Exámenes

- Vómitos intensos, prolongados (> 12 horas en un RN; > 24 horas en < 2 años;> 48 horas en niños mayores) o sin explicación
- Fiebre, síntomas urinarios, o diarrea: OC, dep
- Estudio especìfico dirigido

Name of study	Utility
Complete blood count	Anemia and iron deficiency may be associated with obstruction, IBD, gastritis, and ulcer disease.
	Elevated white blood cell count is associated with bacterial infections and sepsis.
Electrolytes, BUN/Creatinine	Electrolyte abnormalities are associated with pyloric stenosis, adrenal insufficiency, and metabolic diseases.
	Elevated BUN/Creatinine are seen in renal disease.
Liver function tests	Elevated AST, ALT, total bilirubin, and GGT are seen in liver and gallbladder disease.
Amylase, lipase	Elevated in pancreatitis.
Plasma ammonia, urine reducing substances	If an inborn error of metabolism is suspected. Ammonia is elevated in urea cycle disorders and organic acidemias. Non-glucose reducing substances are usually present in the urine in galactosemia or hereditary fructose intolerance.
Plain radiograph of the abdomen	If intestinal obstruction is suspected.
Upper gastrointestinal series	If an anatomic abnormality of upper GI tract is suspected (eg, neonate with bilious vomiting).
CT of the head	If increased intracranial pressure is suspected (rule out mass).
Abdominal ultrasound	If pyloric stenosis or intussusception are suspected; also useful for evaluation of liver, gallbladder, kidneys, and pancreas.
Radionucleotide gastric emptying study	If gastroparesis is suspected.
Endoscopy	If peptic disease, eosinophilic esophagitis, IBD, or other causes of intestinal inflammation are suspected.

Diagnóstico diferencial

Neonate	Infancy	Childhood	Adolescence
Physiologic reflux or GERD*	Physiologic reflux or GERD*	Gastroenteritis*	Gastroenteritis*
Dietary protein intolerance* or allergy (eg, milk protein-induced enteritis)	Gastroenteritis*	Streptococcal pharyngitis*	Posttussive* (asthma, infection, foreign body)
Pyloric stenosis	Dietary protein intolerance* or allergy (eg, milk protein-induced enteritis)	Posttussive* (asthma, infection, foreign body)	Functional dyspepsia*
Necrotizing enterocolitis	Obstruction (eg, intussusception, malrotation, Hirschsprung disease, pyloric stenosis)	Functional dyspepsia*	GERD*
Malrotation with midgut volvulus	Inborn errors of metabolism (eg, hereditary fructose intolerance, galactosemia, organic acidemias, urea cycle disorders)	GERD*	Streptococcal pharyngitis
Congenital atresias, stenoses, webs	Munchausen syndrome by proxy	Peptic ulcer	Pregnancy
Gastroenteritis	Infant rumination	Cyclic vomiting	Bulimia
Hirschsprung disease	Otitis media	Psychogenic	Drugs of abuse
Inborn errors of metabolism (eg, organic acidemias, urea cycle disorders, galactosemia, hereditary fructose intolerance)	Urinary tract infection	Increased intracranial pressure (tumor, hydrocephalus, subdural hematoma from child abuse)	Suicide attempt
Feeding intolerance (may be associated with cardiac, pulmonary, renal, or neuromotor disorders)	Toxic ingestion	Otitis media	Peptic ulcer
Adrenal crisis	Increased intracranial pressure (subdural hematoma from child abuse, hydrocephalus)	Urinary tract infection	Appendicitis
Hepatobiliary disease	Hepatobiliary disease	Toxic ingestion	Psychogenic
	Renal disease (obstructive uropathy, renal insufficiency)	Diabetic ketoacidosis	Gastroparesis
	Pancreatitis	Eosinophilic esophagitis	Intracranial mass
	Adrenal crisis	Obstruction (eg, malrotation, intussusception, incarcerated hernia)	Cyclic vomiting
		Hepatobiliary disease	Eosinophilic gastroenteritis/esophagitis
		Renal disease (renal insufficiency)	Diabetic ketoacidosis
		Pancreatitis	Obstruction (eg, malrotation, intussusception, incarcerated hernia)
		Gastroparesis	Hepatobiliary disease
		Adrenal crisis	Renal disease (renal insufficiency)
			Pancreatitis
			Adolescent rumination syndrome
			Adrenal crisis

Gastrointestinal obstruction
Pyloric stenosis
Malrotation with volvulus
Intussusception (may be intermittent)
Intestinal duplication, stenosis, or atresia
Hirschsprung disease
Antral/duodenal web
Foreign body
Incarcerated hernia

Infectious
Sepsis
Meningitis
Urinary tract infection
Pneumonia
Otitis media
Hepatitis

Metabolic/endocrine
Galactosemia
Hereditary fructose intolerance
Urea cycle defects
Amino and organic acidemias
Fatty acid oxidation disorders
Metabolic acidosis
Congenital adrenal hyperplasia/adrenal crisis

Neurologic
Hydrocephalus
Subdural hematoma
Intracranial hemorrhage
Mass lesion

Other gastrointestinal causes
Physiological gastroesophageal reflux or GERD
Food protein-induced (eg, anaphylaxis, food protein-induced enteropathy, or FPIES)
Gastroenteritis
Peptic ulcer disease
Eosinophilic esophagitis/gastroenteritis
Gastroparesis
Pancreatitis

Toxic
Lead
Iron
Vitamin A or D
Medications (ipecac, digoxin, theophylline, etc)
Other toxins

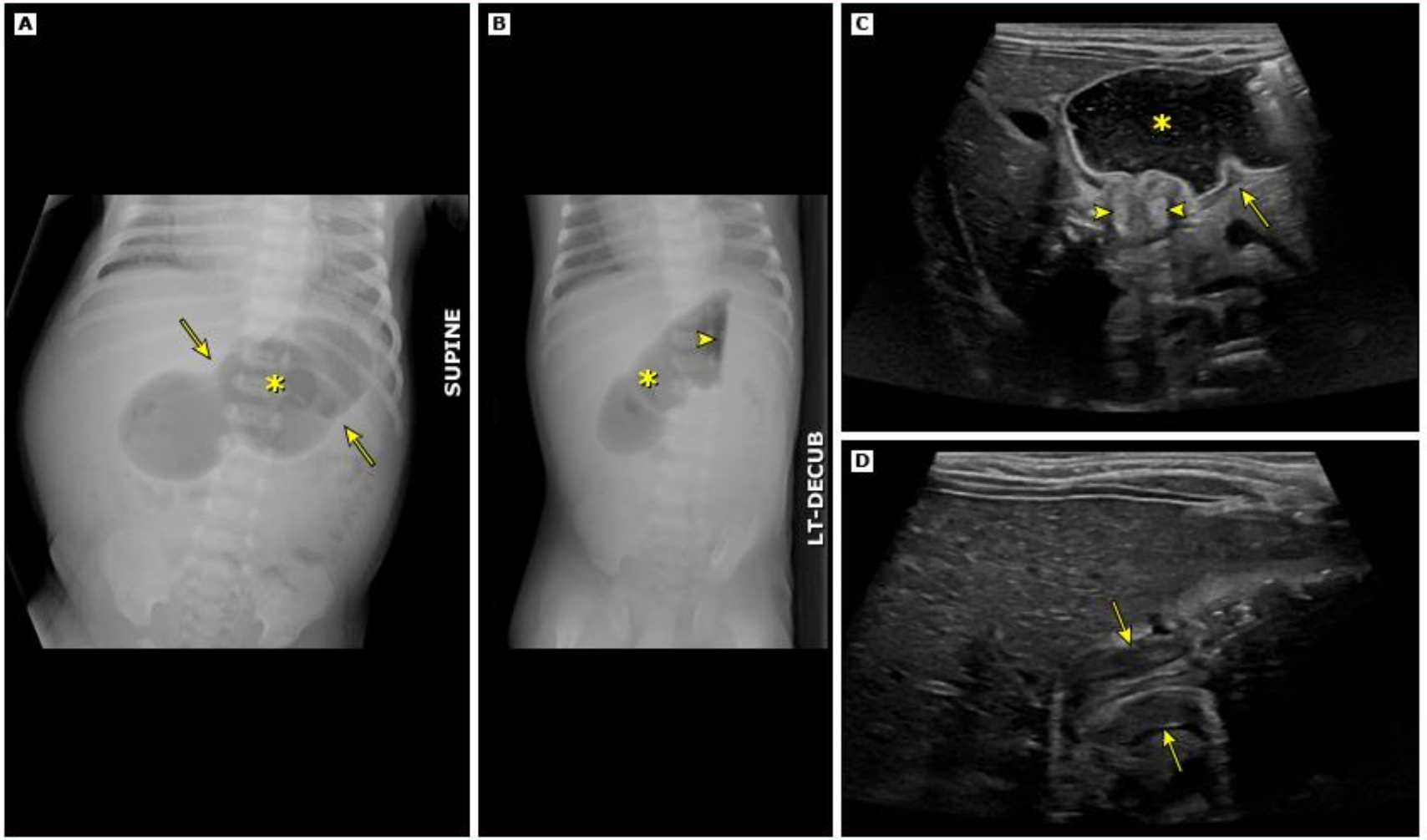
Renal
Obstructive uropathy
Renal insufficiency

Cardiac
Heart failure

Algunos diagnósticos diferenciales

- **RGE**
  - Fisiológico vs patológico
- **APLV**
  - Diarrea con estrías de sangre más comúnmente
  - Subaguda o de aparición tardía
- **Estenosis hipertrófica del píloro**
  - alargamiento y engrosamiento
  - progresa a una obstrucción casi completa
  - 3-6 sem, postprandial inmediato, no biliosos, a menudo en proyectil, “hambriento”
  - Clásico → DH, emaciado, oliva palpable, alcalosis hipoclorémica,

Pyloric stenosis on radiograph and ultrasound



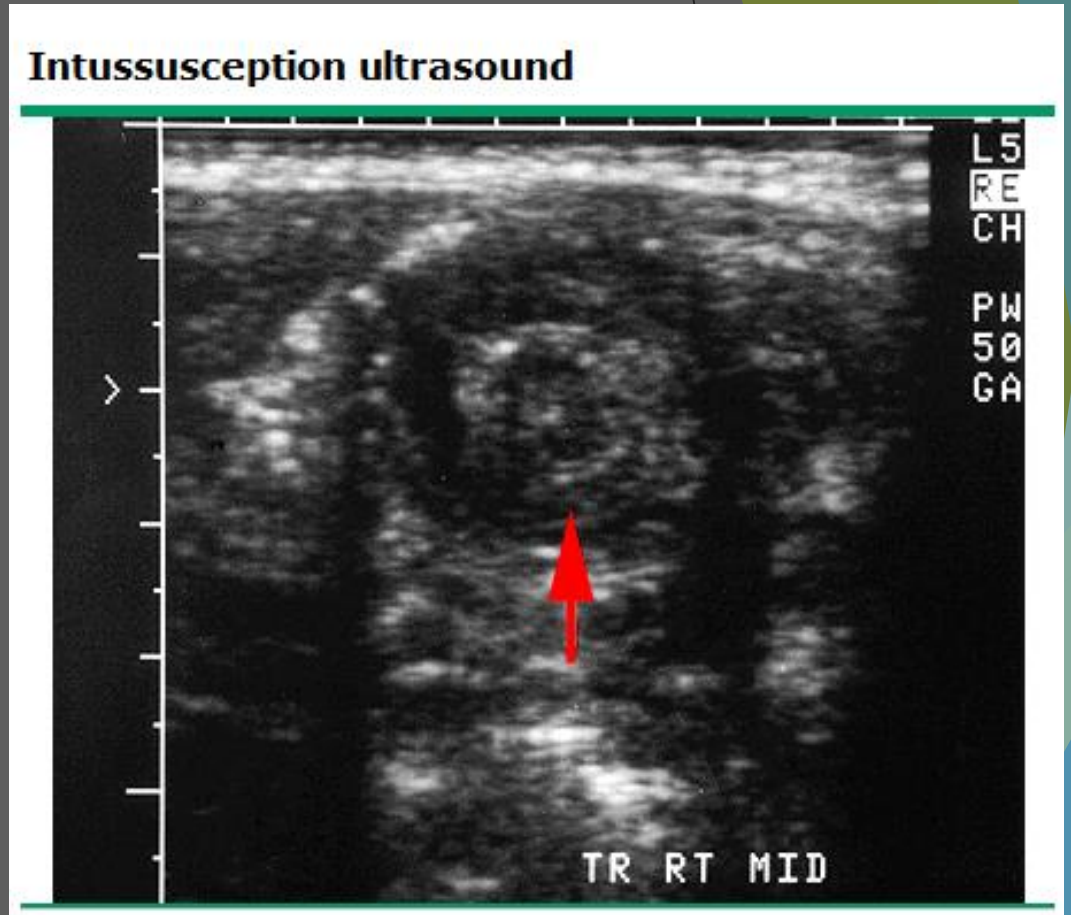
This four-week-old male infant presented with projectile non-bilious emesis and failure to thrive. Image A is a supine radiograph and image B a lateral decubitus radiograph of the abdomen, revealing a dilated stomach with a single air fluid level (arrowhead) and peristaltic waves (arrows), which constitute the "caterpillar sign" of pyloric stenosis. Image C is a sonographic image of the distal stomach and pylorus and shows a dilated stomach (asterisk) with peristaltic waves (arrow) and pyloric wall thickening (arrowheads). Image D is a sonographic image of the epigastrium and shows wall thickening (arrows) and lengthening. The pyloric muscle thickness (PMT) measures 5 mm, and pyloric muscle length (PML) measures 18 mm, consistent with pyloric stenosis.

- HSRC
  - Clínica similiar a EHP
  - Hiponatremia, acidosis hiperkalémica, y/o hipotensión desproporcionada.
  - Genitales ambiguos en mujeres
  - crisis suprarrenal 1-4 sem

- **Obstrucción intestinal**
  - atresia intestinal, enfermedad de Hirschsprung, EHP, Malrotación con o sin vólvulo, intususcepción
  - Vómito bilioso en RN → signo de alarma → atresia u obstrucción de intestino medio
  - Vómito no bilioso → obstrucción proximal
  - Rx abdomen

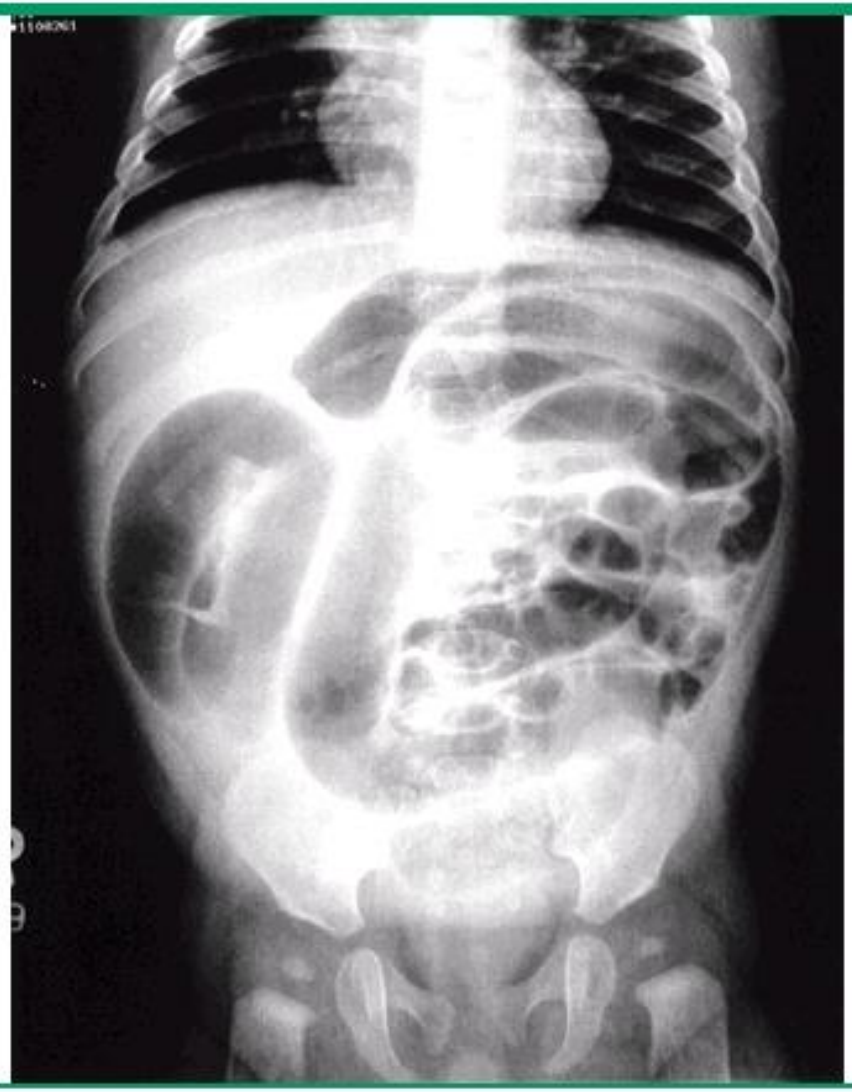
- GEA
  - Lo más frecuente
  - Viral
- Otras infecciones
  - Faringitis
  - ITU
- Gastroparesia
  - alteración del vaciado del contenido gástrico → plenitud posprandial y náuseas y vómitos post-prandial (hrs después)
  - Posvírica, Cirugía con daño del nervio vago, fármacos (opiáceos o anticolinérgicos), alteraciones metabólicas (hipoK, acidosis, o hipotiroidismo), trastornos neuromusculares

- **Intususcepción**
  - Causa más común de obstrucción intestinal en los lactantes de entre 6 y 36 meses
  - Inicio repentino de dolor abdominal intermitente, severo y progresivo, acompañado de llanto inconsolable y postura antiálgica. Vómitos inicialmenteno biliosos, pero con la progresión se tornan biliosos.
  - 70% sangre en deposiciones fresca u oculta



Ultrasonography shows a typical appearance of "coiled spring" pattern.

Intussusception



Plain film of a child with intussusception shows small intestinal obstruction. Notable are a dilated small bowel and the absence of colonic gas.

Courtesy of Nancy Fitzgerald, MD and Taylor Chung, MD.

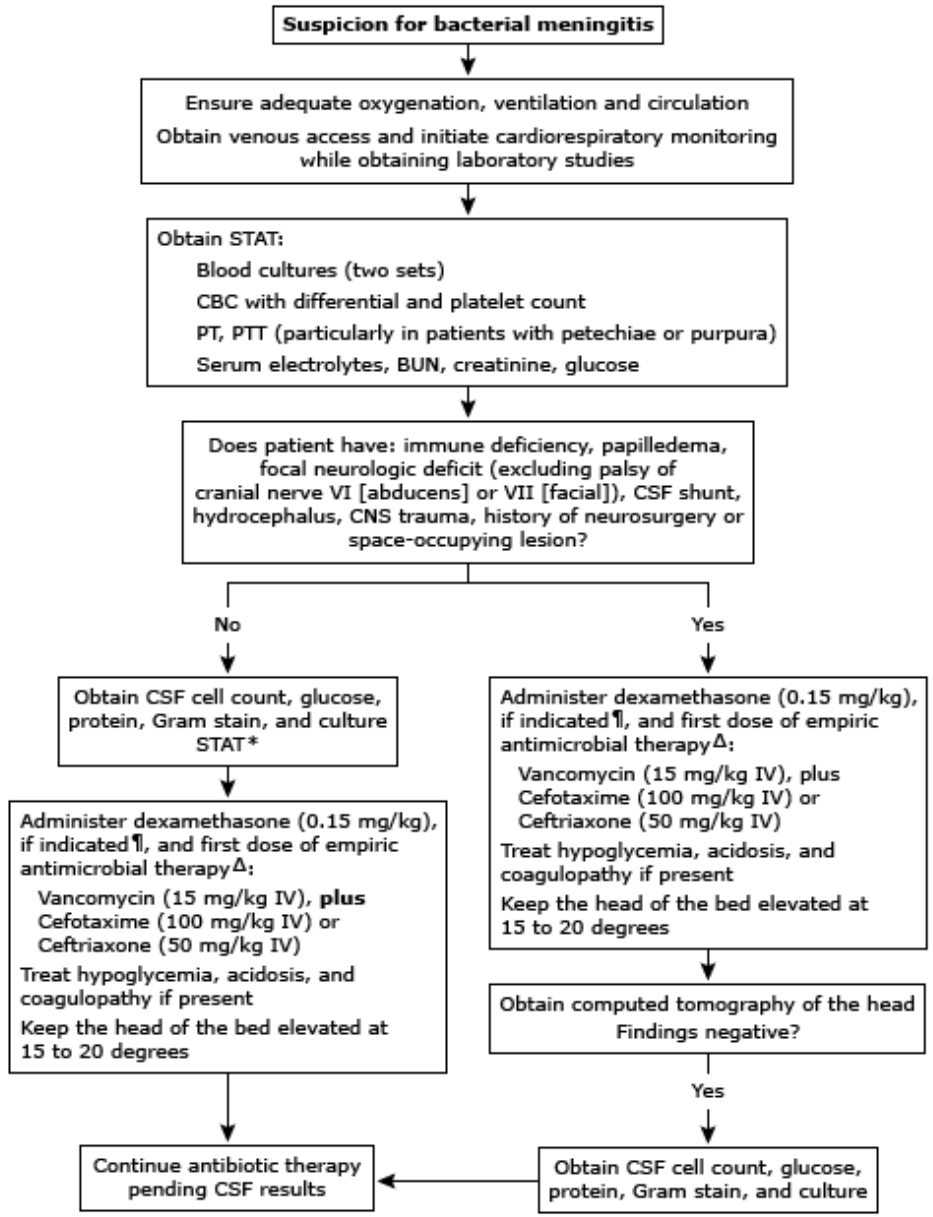
- HTE
  - Emesis que se desencadena por cambio brusco en la posición del cuerpo, especialmente al despertar, con escasa o sin náuseas
  - Cefalea o déficit neurológico focal, pueden ser sutiles

Causes of intracranial hypertension*

Traumatic brain injury/intracranial hemorrhage
Subdural, epidural, or intraparenchymal hemorrhage
Ruptured aneurysm
Diffuse axonal injury
Arteriovenous malformation or other vascular anomalies
Central nervous system infections (eg, encephalitis, meningitis, abscess)
Ischemic stroke
Neoplasm
Vasculitis
Hydrocephalus
Hypertensive encephalopathy
Idiopathic intracranial hypertension (pseudotumor cerebri)

* For further information on clinical manifestations, diagnosis, or treatment of these conditions, refer to specific UpToDate topics.

Management algorithm for infants (≥1 month) and children with suspected bacterial meningitis



STAT: intervention should be performed emergently; CBC: complete blood count; PT: prothrombin time; PTT: partial thromboplastin time; BUN: blood urea nitrogen; CSF: cerebrospinal fluid; CNS: central nervous system.

* Antimicrobial therapy should not be delayed if lumbar puncture cannot be performed or is unsuccessful.

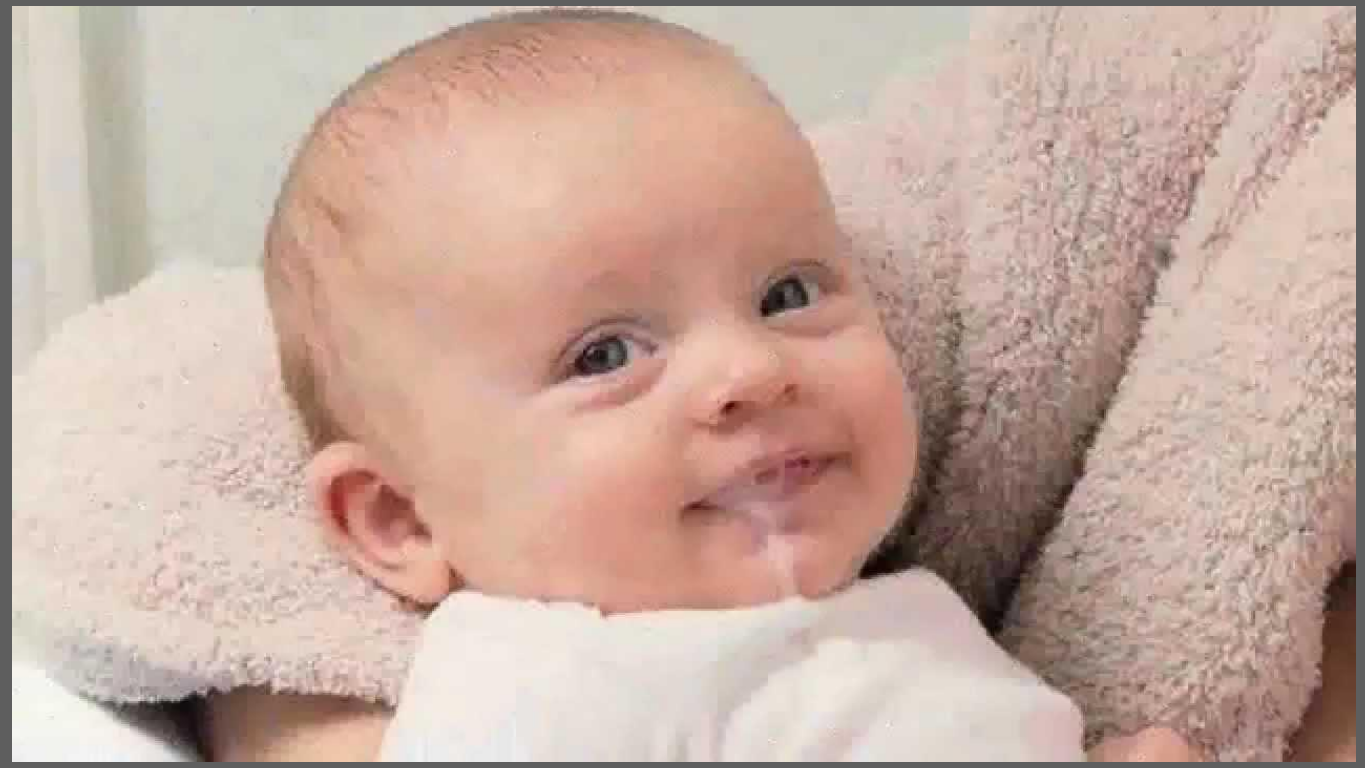
¶ Decisions regarding the administration of dexamethasone should be individualized depending on careful analysis of the risks and benefits as discussed in the text. (See "Treatment and prognosis of acute bacterial meningitis in children").

Δ Empiric antibiotic therapy and dexamethasone (if warranted) should be administered immediately after cerebrospinal fluid is obtained; if dexamethasone is to be administered, it should be given before, or immediately after, the first dose of antimicrobial therapy.

Manejo

- Etiología subyacente.
- Corregir alteraciones hidroelectrolíticas, metabólicas o nutricionales
- Antieméticos no se recomiendo si emesis idiopática, ni son útiles en alteraciones anatómicas o abdomen agudo. Contraindicados en lactantes
- Ofrecer, de forma fraccionada, alguna solución oral hidroelectrolítica y, una vez comprobada la tolerancia, reiniciar la alimentación en forma gradual y progresiva hasta la recuperación.
  - Mantener LM, frecuente y fraccionada

GRACIAS!!!



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