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Brief Review of Omphalitis

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SIMPLE DEFINITION & BACKGROUND:

Omphalitis is an infection of the umbilical stump. It can present as a superficial cellulitis that may spread to involve the entire abdominal wall and may progress to necrotizing fasciitis, myonecrosis, or systemic disease. Omphalitis is still a common cause of neonatal mortality in less developed countries.

PHYSICAL PRESENTATION:

A **local disease** may present with the following: purulent or malodorous discharge from the umbilical stump, periumbilical erythema, edema, tenderness

Extensive local disease with extension may present with the following: Ecchymoses, violaceous discoloration, bullae, peau d'orange, crepitus, petechiae, possible progression of the cellulitis despite appropriate antibiotic therapy

Systemic disease may present with the following: *Disturbances of thermoregulation* - Fever, hypothermia, temperature instability, *cardiovascular disturbances* - Tachycardia, hypotension, delayed cap refill, *respiratory disturbance*s - Apnea, tachypnea, grunting, nasal flaring, intercostal or subcostal retractions, hypoxemia, *GI tract disturbances* – Rigid abdomen, distended abdomen, absence of bowel sounds, *cutaneous abnormalities* - Jaundice, petechiae, cyanosis, *neurologic abnormalities* - Irritability, lethargy, weak suck, hypotonia, hypertonia

ETIOLOGY:

Typcially a polymicrobial infection is observed due to aerobic and anaerobic organisms. *Can be related to the following associated risk factors*: Low birth weight, prior umbilical catheterization, septic delivery, prolonged rupture of membranes. *Omphalitis occasionally manifests from an underlying immunologic disorder.* Leukocyte Adhesion Deficiency **(LAD)** is most prominent among the immunodeficiency syndromes. *They may present with the following:* Leukocytosis, delayed separation of umbilical cord, recurrent infections. **Neonatal alloimmune neutropeni**a has also been linked to omphalitis. Sometimes an *anatomic abnormality* such as a **patent urachus or urachal cyst** may be present

LABS:

Specimens from umbilical infection *on routine basis*, submit specimens for Gram stain and culture for aerobic and anaerobic organisms. If myonecrosis is suspected, obtain specimens *from the involved muscle*. Obtain blood cultures for aerobic and anaerobic organisms, Obtain a CBC count with manual differential, c-reactive protein levels, procalcitonin, erythrocyte sedimentation rate, neutrophil CD64, peripheral blood smear, prothrombin time, activated partial thromboplastin time, fibrinogen, fibrinogen split products or d-dimer

IMAGING:

KUB, U/S or CT abdomen may reveal anatomic abnormalities

MANAGEMENT:

Medical: Parenteral antimicrobial coverage for gram-positive and gram-negative organisms. A *combination of an antistaphylococcal penicillin vancomycin and an aminoglycoside is recommended. Anaerobic coverage with metronidazole or clindamycin.* Gentamicin is good for gram – coverage, oxacillin is used as an antistaphylococcal penicillin, clindamycin and metronidazole are good for anaerobic coverage, ampicillin is a broad-spectrum penicillin, vancomycin is active against most aerobic and anaerobic gram-positive cocci and bacilli and is especially useful in the treatment of MRSA. Topical therapy with bacitracin and other antimicrobials has been suggested in addition to parenteral antibiotic therapy. Ventilatory assistance and supplementary oxygen for hypoxemia or apnea unresponsive to stimulation. Administration of fluids, vasoactive agents, or both for hypotension, Administration of platelets, fresh frozen plasma, or cryoprecipitate for DIC, expect erythema of the umbilical stump to improve within 12-24 hours after the initiation of antimicrobial therapy. Failure to respond may suggest disease progression

Surgical: **N**ecrotizing fasciitis and myonecrosis involves early and complete surgical debridement, excision of preperitoneal tissue is critically important in the eradication of the infection

DIAGNOSIS & DIFFERENTIALS:

Diagnosis is made by the clinical appearance of the umbilical cord stump and the findings on H&P. A mild degree of redness around the umbilical stump is common, as is some bleeding at the stump site with detachment of the umbilical cord. The use of caustic agents to clean the stump may lead to confusion of clinical judgement, or if silver nitrate has been used for granulomata of the umbilical stump

Differential Dx: Anterior abdominal wall cellulitis, neonatal septicemia, burns, urachal cyst with secondary bacterial infection, granulomata of umbilical site

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