CEREBRAL ABSCESS IN A YOUNG INFANT

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HISTORY:

56 days old, 2nd born to NCM, Male child

Right focal seizures for five days

No history of fever/vomiting/altered sensorium

Child had history of pustular skin rash on D10 of life treated with topical medications.
INVESTIGATIONS

TC : 14,200
DC : P30 L66 M1 E1 M2
Hb : 10.4
Platelet: 4.8Lakhs
CRP : Negative
PCT : Negative
MRI showed RING ENHANCING lesion with perilesional edema in the left parietal region.
COURSE IN THE HOSPITAL

Burr hole drainage was done & 5 ml pus was drained. He was on I.V. Ceftriaxone, I.V. Vancomycin & Metronidazole

*ECHO*: Normal

*Pus culture*: showed heavy growth of MSSA. Antibiotics were changed to I.V. Cloxacillin.

*Blood culture*: sterile.

*Repeat MRI Brain*: on POD2 showed small residual cystic lesion with surrounding edema.
FURTHER WORK UP

*Immunological work up:* Low IgM 5 (13 -77) & Borderline low IgG(235)

Normal flow cytometry.

HIV ELISA negative.
HAI- RIGHT SEPTIC ARTHRITIS

After completion of 4 weeks of antibiotics, there was decreased movements of right lower limb.

On examination, there was mild swelling & tenderness of Right Hip Joint. Child had right femoral line, which was removed 3 days ago.

Hence possibility of HAI was considered & was started on I.V. Piperacillin +Tazobactum & Vancomycin.
REPEAT INVESTIGATIONS

CBC 20800  P40L58E1M2
CRP73.6. *USG Right Hip*- Normal.
*MRI right hip*: suggestive of minimal hip joint effusion
Orthopedician was involved & fluid was aspirated from Right hip joint.
Repeat CBC & CRP showed a decreasing trend.
Synovial fluid & Blood culture – Sterile
Hence Antibiotics were descaled to oral clindamycin to complete total 4 weeks of antibiotics.

Repeat MRI Brain – s/o completely resolved abscess
RE- ADMISSION

One month after discharge child again presented with fever and vomiting. On examination, found to have swelling over scalp at the site of previous surgical scar.

CBC-9600/9.5/3.9L  P40L54E1M1
CRP-147.7
CSF analysis - normal
MRI brain:
gliotic changes in Lt precentral and paracentral region &
Lt parietal scalp abscess

Incision & Drainage of Abscess done.

Blood and pus culture grew MRSA.
Repeat Immunological workup

Work up:
- decreased IgG – 5.95(7-16)
  - IgA – 0.45(0.7-4)
  - IgE - <16.7
    - normal IgM 1.56(0.4-2.3)
- Flow cytometry normal/ NBT – normal.
Child was started initially on Inj.Ceftriaxone & Inj.Vancomycin.
IVIG was given for Transient hypogammaglobulinemia.

Child improved & discharged on oral Linezolid.
BRAIN ABSCESS

CAUSES:

- Pneumococcus, Streptococcus pyogenes,
- Streptococcus milleri, Enterococcus, Anaerobes,
- Staphylococcus Aureus
- Gram negative bacilli-Haemophilus species,
- Enterobacter, E.Coli, Proteus
- Neonates – Citrobacter/Proteus/Listeria
- Fungal – Candida, Aspergillus
MIMICS OF BRAIN ABSCESS:

Tumour – necrotic or cystic
Infarction secondary to cerebral emboli
Focal encephalitis
PRINCIPLES OF TREATMENT:
UNKNOWN CAUSE: 3\textsuperscript{RD} GENERATION CEPHALOSPORIN
+METRONIDAZOLE+VANCOMYCIN
CHD: AMPICILLIN+SULBACTAM/3\textsuperscript{RD} GENERATION
CEPHALOSPORIN+METRONIDAZOLE MAY BE USED
MEROPENEM –GOOD ALTERNATIVE BUT NOT FOR MRSA
& PENCILLIN RESISTANT STRAINS OF
PNEUMOCOCCI
CITROBACTER - 3\textsuperscript{RD} GENERATION CEPHALOSPORIN + AMINOGLYCOSIDE
LISTERIA - AMPICILLIN + 3\textsuperscript{RD} GENERATION CEPHALOSPORIN
IMMUNOCOMPROMISED: BROAD SPECTRUM ANTIBIOTICS + AMPHOTERICIN B
SURGERY VS MEDICAL MANAGEMENT

ABSCESS >2.5 CM
GAS IN ABSCESS
MULTILOCULATED
POSTERIOR FOSSA
ASSOCIATED OTITIS MEDIA, SINUSITIS
RAISED ICT OR MASS EFFECT

ANTIBIOTIC THERAPY FOR 4-6 WEEKS.
PROGNOSIS:
MORTALITY – 15-20%
FACTORS ASSOCIATED: AGE <1 YR
  MULTIPLE
  COMA
LONG TERM SEQUALAE – HEMIPARESIS, SEIZURES,
  HYDROCEPHALUS
  CN ABNORMALITIES
  BEHAVIOUR&LEARNING ISSUES
REVIEW OF LITERATURE:
Most common cause - CHD
Most common presentation - Fever/Headache/Seizures
Vomiting/FND

Fever can be present in 30%-70% of cases.
Neonates - a) Acute to subacute evolution
b) Acute onset / Fulminant
CRP negative – very rare
References:
1) Nelson Textbook of Paediatrics
2) Indian J Pediatr. 2006 May; 73(5):401-4
5) Neurology of newborn – Joseph J. Volpe
FINAL DIAGNOSIS

CEREBRAL ABSCESS(MSSA) WITH SEPTIC ARTHRITIS RIGHT HIP WITH UNDERLYING TRANSIENT HYPOGAMMAGLOBULINEMIA.
Take Home Points

1) Acute Phase Reactants need not always give clues to bacterial infection
2) Brain Abscess Responds well to Surgical Drainage & Appropriate Abx
3) Workup for Immunodeficiency must for serious infection even if for the first time
4) Brain Abscess is a great mimicker