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MYELOMENINGITIS SECONDARY TO SARCOCOOYGEAL SINUS INFECTION IN AN INFANT: A CASE REPORT

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Abstract: Meningitis is the inflammation of the meninges (protective membrane) surrounding brain and spinal cord. Fungal meningitis is very uncommon in the pediatric population, commonly seen in immunocompromised patients due to HIV infection, systemic lupus erythematosus, diabetes, transplantation or cancer, congenital abnormalities and in the settings of prematurity. A 9months old female child weight bearing 7kgs brought to the PICU with reliable informant being father with chief complaints of fever (high grade and intermittent for 1 month), crying during defecation for 15 days, decreased urine output(2-3/day), weakness of both lower limbs for 1 week, loss of touch and pain sensation, drooping of right eyelid, deviation of angle of mouth to left, Meningeal signs (Neck stiffness and bladder retention). in this case 9 months infant is having a congenital dermal sinus in the sacrococcygeal region. This tract was an open pathway to fungal infection which got spread to spinal cord and resulted in myelomeningitis. The condition was treated with Antibiotics, corticosteroids, antiepileptic, antifungal and multivitamin supplements.

Index Terms **– Meningomyelitis, Sacrococcygeal infection infection, Candida albicans.**

I. INTRODUCTION

Meningitis is the inflammation of the meninges (protective membrane) surrounding brain and spinal cords said by Katherine Putz et., al. There are different types of infectious agents that can cause meningitis which includes bacteria, viruses, fungi and mycobacteria. Fungal meningitis is very uncommon in the pediatric population, commonly seen in immunocompromised patients due to HIV infection, systemic lupus erythematosus, diabetes, transplantation or cancer, congenital abnormalities and in the settings of prematurity as per the researcher Donald D et., al. Lefko T. Charalambous et., al concluded that there are 4 different kinds of candida species which are distributed all over the world that can cause meningitis which include Candida albicans, Candida tropicalis, Candida lusitaniae and Candida parapsilosis. Studies states that the incidence rate of candida meningitis is 0.4% in infants less when compared to other species infection. Fungal meningitis due to congenital abnormality (due to dermal sinus) is a rare kind. A multi-layered, scaly pathway of tissue, just below the skin (1 to 2 millimeter) surface extending to the portion of spinal cord, skull base or nasal cavity, found anywhere all through the body's midline between the nasal bridge and the tailbone is called congenital dermal sinus. This track is the easy channel to infections affecting dura matter and other outer membranes resulting in meningitis and abscess according to Miiko Ito et.,al. If this sinus is through sacrum and coccyx than it is called sacrococcygeal sinus.

II. CASE REPORT

A 9months old female child weight bearing 7kgs brought to the PICU with reliable informant being father with chief complaints of fever (high grade and intermittent for 1 month), crying during defecation for 15 days, decreased urine output(2-3/day), weakness of both lower limbs for 1 week, loss of touch and pain sensation, drooping of right eyelid, deviation of angle of mouth to left, Meningeal signs (Neck stiffness and bladder retention). Birth history includes Sinus positive over sacral region since birth. H/o past illness includes fever and loose stools for 10-15 days (7-8 episodes /day large volume, watery greenish Colour). Child was previously admitted in hospital when HOLOCORD SYRNIX with abscess was diagnosed and abscess drained from pre-sacral region. Immunization history -BCG scar seen and immunized up to date. On examination child was in pithed frog position, active movement is positive only in left upper limb, temperature-101.4F, Pulse rate -130bpm, Respiratory rate-34/ min, Spo2-97%with 2L O2, CVS-S1 S2 positive, Urine output-3.6kg/hr, GCS-E4V5M6, CNS- Attitude of lower limb: Abduction, extended rotation at hip, external rotation (ankle fusion and knees), Attitude of Right upper limb: Abducted, external rotation i.e., shoulder extended at elbow and wrist. Right pupil dilated and both pupils reacting to light. There was a provisional diagnosis of ACUTE FLACCID PARALYSIS WITH DREASED EVALUATION AND TRANSVERSE MYELITIS. Lab investigation: CBP Reports: Hemoglobin-8.6g/dl, red blood cells-3.82mill/cumm, Total blood cell count-19,100/cumm, Neutrophils-68%, Lymphocytes-27%, Monocytes-3%, Liver function test, Complete urine examination and Complete stool examination was found to be normal, C-reactive protein test -25.30%, Dengue – Negative, Malarial Parasite test -Negative, HBSAg, HIV-I and HIV-II, HCV non-reactive found to be negative. Sample IgM-71.5mg/dl, IgA-62.6mg/dl, IgG- 1900mg/dl, IgE-13.5mg/dl, ECG was found to be normal, COVID- Negative, Microbiological

test -Candida species grown in culture, MRI of spine with contrast reports – Features likely Myelomeningitis with abscess in intra and extra medullary region, MRI of Brain and Spine with contrast -Dilated central canal throughout its length up to the level of C5 with homogenous and irregular ependymal enhancement and thinned out cord. Cranial nerve examination – Sensory -loss of sensations up to 2cm above umbilicus and loss of sensation in right upper limb, MRI Spine (P &C) report: Known case of myelomeningitis status post OP-Splaying of posterior elements at S1 to S5 noted, Linear T2 hypointense tract measuring 3.9cm noted from skin in subcutaneous planes to spinal canal at L4-Lt level with post contrast enhancement of the tract likely infected dorsal dermal sinus.Operation Note: L4-S5 Laminectomy+dithering of cord Durotomy+Central myelotomy + Abscess drainage (Gluteal, intradural). Confirmational diagnosis was MENINGOMYELITIS SECONDARY TO SACCROCOCEUGEAL INFECTION.

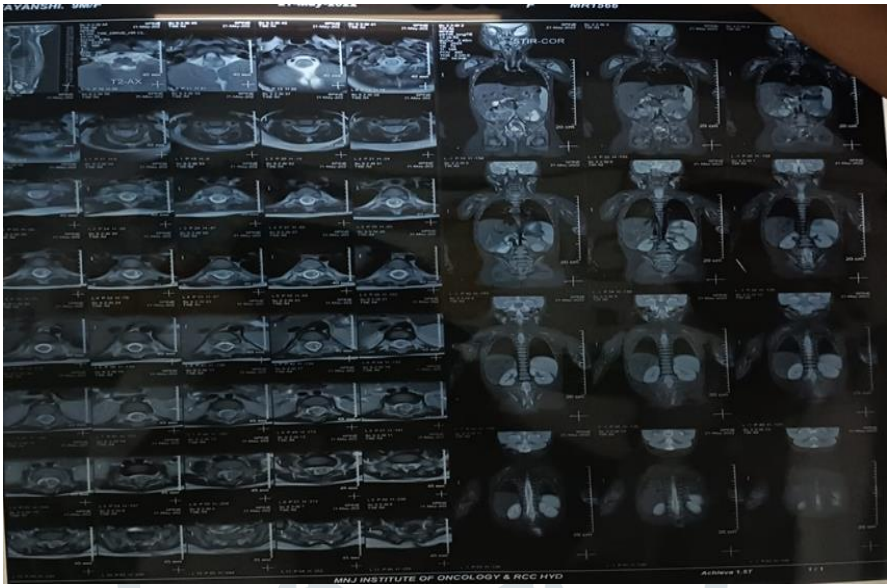

Figure-1: MRI of spine showing Myelomeningitis with organizing abscess in intra and extra medullary region

Figure-2: MRI of spine showing splaying of posterior elements at S1 to S5 noted, Linear T2 hypointense tract measuring 3.9cm noted from skin in subcutaneous planes to spinal canal at L4-Lt level with post contrast enhancement of the tract likely infected dorsal dermal sinus.

III. TREATMENT:

The condition was treated with Antibiotics, corticosteroids, antiepileptic, antifungal and multivitamin supplements. Antibiotics – Inj. Vancomycin 60mg/kg/day and Inj. Meropenem 40mg/kg/dose was given for 30 days (till discharge), Inj. Amikacin 1.5mg/kg/day was started on 5th day of admission and given for 13 days. Antiepileptics- Inj. Levipil 40mg/kg/day given for 30 days till discharge. Corticosteroids: Inj. Dexamethasone 0.15mg IV QID started from fourth day of admission and given for 9

days. Antifungal- Inj. Fluconazole loading dose 12mg/kg/stat, maintenance dose 6mg/kg/day given for 1 week. Multivitamin supplements like Vit D3 drops, ORS sachets were prescribed. Inj. Vit K 2.5 ml OD was given once in a week.

IV. DISCUSSION

Inflammation of meninges called meningitis is a life-threatening disease condition which can be caused due to bacterial, viral, fungal and parasitic infection according to Hersi K et., al.This is the case of fungal meningitis as the microbiological test isolated candida species. Fungal meningitis is very uncommon in the pediatric population, commonly seen in immunocompromised patients due to HIV infection, systemic lupus erythematosus, diabetes, transplantation or cancer, congenital abnormalities and in the settings of prematurity. Meningitis due to congenital abnormalities is a rare kind and in this case 9 months infant is having a congenital dermal sinus in the sacrococcygeal region. This tract was an open pathway to fungal infection which got spread to spinal cord and resulted inmyelomeningitis and abscess in the gluteal, intradural regions and was drained out. The associated clinical symptoms include asymptomatic skin findings due to infection, neurological abnormalities, urinary complications, and orthopedic complications according to Mohamed Abdel Bari Mattar et., al. The current case signs and symptoms of fever, weakness of lower limbs initially and later right upper limb as well, loss of touch and pain sensation which resulted in paralysis, difficulty in micturition, loose stools. Basic treatment involves complete cessation of the sinus tract drainage of abscess along with antibiotic treatment following the culture and sensitivity test, also treating signs and symptoms as concluded by Foram Gala et., al. Here, the all the basic treatment approaches were implemented, surgery was done to drain abscess, based on the culture and sensitivity test antifungal drugs like fluconazole, and three different class of antibiotics were prescribed, treatment also involved corticosteroids low dose along with antiepileptic drugs like levipil as prophylactic measure keeping in mind the neurological symptoms. Progress was seen after 2 weeks of the hospital stay and the development was seen in the limb activity the symptoms started subsiding. Physiotherapy played a major role in the progress and the same was suggested to continue until the baby become completely healthy.

V. CONCLUSION: Meningitis is an important infectious disease that affects different age groups of people around worldwide. Establishment of diagnosis and rapid management of abscess complicating a congenital is crucial to restore neurological function. By making a correct interference, neurologic function can be recovered in these patients.

VI. ACKNOWLEDGEMENT: Authors are thankful to the Institution for approving and permitting to perform case report.

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