OLD IS NEW

Resuscitating Clinical Experiences Around Antepartum Management Options for Congenital Syphilis

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Background

WHO launched a large campaign in 2007 to eliminate congenital syphilis [1]. Despite this, there has been a dramatic rise noted over the last few years in Canada [2]. Rates of primary and secondary syphilis in pregnancy increased by 172% between 2014-2018 [3] with unfortunate re-emergence of congenital syphilis [2,3]. Vertical transmission is highest with primary, secondary or early latent syphilis at 50-80% [3] and drops as patients progress into the late latent phase of infection.

The treatment of maternal syphilis is well-established, with current recommendations suggesting 2.4 million units benzyl-penicillin IM for one or two doses. Antepartum treatment significant risk reduction for congenital syphilis, stillbirth and preterm birth, as well as neonatal morbidity [3]. However, antepartum treatment regimens have not been well described in cases of an affected fetus.

Fetal infection is not commonly identified prior to 16-20 weeks, related to an immature immune system [3]. When severe infection is present, sonographic features include hepatomegaly, ascites, polyhydramnios and placental mottling [4]. Infants with ultrasound abnormal findings are significantly more likely to require neonatal treatment for congenital syphilis, despite antenatal treatment [4].

Case Review

A 29yo G4P3 was initially identified as syphilis contact. She presented to the local nursing station pregnant, with significant stiffness and pain to her neck and upper back with difficulty ambulating over the last month, concerning for neurosyphilis. Upon transfer, stable vital signs, pain with neck flexion, decreased strength to lower extremities, irregular shallow vulvar ulcer identified. Ultrasound performed in our tertiary care facility demonstrated single live intrauterine pregnancy with a gestational age of 19+3 weeks. The fetus was hydroptic with large pleural effusions, ascites and markedly abnormal brain. The placenta was cystic and enlarged.

Investigations

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Result</th>
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<tbody>
<tr>
<td>CBC</td>
<td>Hgb 77, WBC 12.1, Plts 551</td>
</tr>
<tr>
<td>ESR</td>
<td>&gt;140mm/hr</td>
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<tr>
<td>VDRL</td>
<td>1:64</td>
</tr>
<tr>
<td>CSF Protein</td>
<td>0.12g/L, Glc 3.7, TNCC 1</td>
</tr>
<tr>
<td>CSF culture</td>
<td>No bacteria, fungi or AFB.</td>
</tr>
<tr>
<td>MRI head/spine</td>
<td>Unremarkable</td>
</tr>
<tr>
<td>Serology</td>
<td>Negative for CMV, VZV, HSV, Anaplasma, WNV, Toxoplasmosis</td>
</tr>
<tr>
<td>Borella burgdorferi IgM</td>
<td>[+] IgG [-]</td>
</tr>
<tr>
<td>Vulvar ulcer</td>
<td>Positive for T. pallidum DNA</td>
</tr>
<tr>
<td>Amniocentesis</td>
<td>Positive for T. pallidum DNA</td>
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</tbody>
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Figure 1. Enlarged, hydroptic, syphilitic placenta with multiple cystic lesions at 19-hkws gestational age (GA).

Figure 2. Marked scalp edema, very abnormal brain with single cisternal fluid, streaky echoes throughout brain matter at 19-hkws GA.

Figure 3. Very large ascites, echogenic clumped bowel, compressed kidneys suggestive of high intra-abdominal pressure at 19+3 weeks GA.

Figure 4. Worsening of ascites with abdomen measuring 32 weeks size at 2015 weeks GA.

Outcome

Interval examination revealed worsening fetal status. The fetal abdomen was grossly distended from ascites and measuring 13 weeks ahead of gestational age.

The prognosis was suspected to be extremely poor given the timing of infection during development and anomalous appearing fetal brain. The parents chose termination of pregnancy and underwent medical induction of labour with miliprostide and misoprostol. The delivery was uneventful.

Therapy

Intravenous penicillin therapy was initiated at neurosyphilis dosing (24 million units/day divided q6h) given the maternal presentation. This was continued for a total of 9 days, over which maternal status was improved.

Challenges

At this time, very little evidence exists on expected fetal response to treatment or suggested length of therapy. Prognostication is especially challenging.

We identified a case report from 1993, where ultrasound demonstrated fetal hydrops at 24wks gestation. [5] The patient treated weekly for 3 weeks with IM penicillin with worsening fetal ascites, and was subsequently then transitioned to 10 days of IV penicillin. Improvement in fetal status was noted by ultrasound 10 days after completion of therapy with serial improvement until a healthy term delivery.

A retrospective cohort study from 2014 followed 73 pregnancies affected by congenital syphilis with ultrasound findings. They hypothesized that enlargement of the fetal liver and placenta represent earlier stages of infection while ascites and polyhydramnios are less common and take longer to resolve.

Conclusions

1) Congenital syphilis is increasing in prevalence.
2) Pregnancy complications are dependent on stage of infection and can be catastrophic.
3) There is little known about treatment, outcomes or prognostication in severely affected fetuses.
4) There is urgent need to reinvigorate research and knowledge sharing among experts in order to improve management of antenatal congenital syphilis.

References


Acknowledgment This patient has generously provided consent to share her story.