Takayasu’s arteritis during pregnancy: A case report

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ABSTRACT

Takayasu’s arteritis (TA) is also known as aorto arteritis having an incidence is 13/million population. Here, we report the case of a 30-year-old woman gravida 2, para 1, who was admitted for safe delivery at 38 weeks of pregnancy. Clinical examination revealed an absence of radial pulse and blood pressure (BP) in both upper limbs and lower limbs BP recording showed 150/90 mm Hg with a pulse rate of 112/min. She was a known case of TA diagnosed during her first pregnancy. An elective cesarean section was done and a healthy male baby weighing 3.2 kg was delivered. The postnatal period was uneventful. She was discharged on the 8th day. A magnetic resonance imaging (MRI) angiogram was done before the second pregnancy. There was complete occlusion of the left common carotid artery from the origin with occlusion of the left internal carotid artery and there was collateral refilling of the left anterior cerebral artery and middle cerebral artery from the posterior communicating artery. The left vertebral artery showed circumferential wall thickening with hypointense flap within.

Key words: Arteritis, Caesarean section, Magnetic resonance imaging angiogram

CASE HISTORY

A 30-year-old woman, a known case of TA, was admitted to our hospital for safe confinement on March 22, 2023. Her last menstrual period date was June 25, 2022, and the estimated date of delivery was April 02, 2023. She was gravida two, 1st living healthy baby delivered by lower segment cesarean section (LSCS) in 2015 in the same hospital.

While doing the antenatal checkup during first pregnancy in 2015, there was an absence of radial pulse on the right upper limb and she was referred to Bangalore for further investigation. TA was diagnosed and she was on treatment for the same. LSCS was done due to non-progress of labor. There were no postnatal complications and was discharged from the hospital. Three years after the first delivery, she had attacks of severe headaches off and on. She consulted a clinician and was advised to get a computed tomography angiogram (Fig. 1). After injecting contrast through bolus tracking, images were obtained from carotid bifurcation to Aortic bifurcation, 0.6 mm slice thickness followed by volume rendered maximum intensity projection and MRP images. The ascending aorta, arch of aorta, descending aorta, brachiocephalic trunk, left common carotid, left subclavian, and left vertebral artery were normal. Right and left pulmonary arteries were normal. Abdominal aorta, coeliac trunk, superior mesenteric, and inferior mesenteric arteries were normal. Both renal arteries were normal.

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with normal enhancement of both kidneys. Aortic bifurcation and common iliac arteries were normal. Circumferential wall thickening was seen involving the right subclavian artery causing significant luminal narrowing of about 70–80%. Right axillary and proximal brachial arteries were occluded. The brachial artery was reformatted in the upper 1/3 of the arm. Numerous chest collaterals were noted on the right side. Circumferential wall thickening was seen involving the right common carotid artery causing about 30% narrowing. The right vertebral artery was diffusely narrow in caliber and showed faint contrast opacification.

She was advised to follow treatment inj Actemra 400 mg 6 injections. During 2019, she was advised the same treatment 4 injections. In January 2020, she had attacks of severe headache, suggesting cerebrovascular lesions. She was advised inj Actemra again and inj Clexene for 3 days and was advised magnetic resonance imaging (MRI) brain which showed acute infarcts in the left frontal lobe, predominantly involving the cortical and subcortical regions. Lacunar fluid intensity lesions were seen in the genu of the corpus callosum as well as the right caudate nucleus. There was collateral refilling of the left anterior cerebral artery and middle cerebral artery from the posterior communicating artery. Lacunar infarcts were shown in the genu of corpus callosum as well as the right caudate nucleus. The left vertebral artery showed circumferential wall thickening with hypointense flap within. She discontinued all treatment due to financial reasons and was on Ayurvedic medication for 2 years. Later, she discontinued all treatment.

On general physical examination, radial pulse and blood pressure (BP) were not felt on both upper limbs. The pulse rate was 112/min and BP was 150/100 mm of Hg in the lower limb. Cardiovascular and respiratory system examinations were normal. Obstetric examination findings were uterus 38 weeks and relaxed with cephalic presentation, fetal heart sound was 130/min. She was on the following treatment–Tab Prolomet 25 mg daily, Tab Ecosprin 150 mg daily, Tab Azothioprim 50 mg daily, and Tab Metpure 25 mg daily. A bilateral upper limb arterial Doppler study was done on September 12, 2022. There was diffuse wall thickening with severe diffuse narrowing of the second and third parts of the right subclavian artery, causing monophasic flow in arteries distal to it.

Elective LSCS was done on March 23, 23 and a healthy male baby weighing 3.2 kg was delivered. During LSCS, liquor was clear there was a true knot of umbilical cord seen. There were no other specific findings. The postnatal period was uneventful. She was discharged on the 8th day.

DISCUSSION

TA is a granulomatous vasculitis of large vessels that mainly affects the aorta and its proximal branches. In 1990, the American College and Rheumatology published the classification criteria and the disease took the name of TA. Its etiology is unknown but it seems to be related to infectious triggers that amplify the inflammatory response through cellular mechanisms and cause damage to the vascular wall with subsequent thickening, fibrosis, stenosis, thrombus formation, and aneurysms. The lesions are...
usually asymptomatic and are discovered in the late stages of the disease when ischemic symptoms occur [4].

Systemic vasculitides are rare autoimmune disorders characterized by necrotizing inflammatory infiltration of blood vessels and multisystem involvement. It is widely recommended that the woman suffering from autoimmune systemic disease need to plan their pregnancy during periods of remission or low disease activity to avoid unfavorable outcomes for both mother and fetus, as well as to prevent the severe response of the disease itself during this period [5-7].

The Hata Numeno classification is based on the extent of the disease and the vascular territory affected classified the disease as: Branches of aortic arch (I), ascending aorta, aortic arch and its branches (IIa), ascending aorta, arch and ascending aorta, descending thoracic aorta (IIb), abdominal aorta, renal arteries or both (IV), ascending aorta, aortic arch and its branches, descending thoracic aorta, renal artery, or both (V) [4,8]. Another classification, based on complications such as hypertension, retinopathy, aneurysm, and aortic insufficiency, categorized the disease as having no complications (Stage I), one of the complications (Stage II a), one of these complications with severe form (Stage II b), more than one complication (Stage III) [2]. The present case belongs to Type I as per the Hata Numeno classification because there is the involvement of aortic arch branches only. Based on complications, the case is Stage I as there were no complications. Table 1 shows the literature review of the previous cases [9,10].

Table 1: Comparison of cases reported by many authors

<table>
<thead>
<tr>
<th>S No.</th>
<th>Author, year</th>
<th>Age, parity</th>
<th>Clinical presentation</th>
<th>Maternal complications</th>
<th>Mode of delivery</th>
<th>Fetal outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Itani et al. [1] 2018</td>
<td>31 year G2 P1</td>
<td>X-ray chest wide superior mediastinum CT dissecting aortic aneurysm</td>
<td>Known case of TA booked at 11 weeks of pregnancy</td>
<td>LSCS done</td>
<td>Live baby</td>
</tr>
<tr>
<td>2</td>
<td>Marwah et al. [2] 2017</td>
<td>25 years G2 P1 L1</td>
<td>Pain in the right lower limb</td>
<td>Controlled HTN, neurological squeal, IUGR</td>
<td>Vaginal delivery</td>
<td>Live baby</td>
</tr>
<tr>
<td>4</td>
<td>Malhothra et al. [6] 2015</td>
<td>25 years G3P2.</td>
<td>Woman visited at 26 weeks and was asymptomatic. On examination upper limb pulses were not felt, bilateral carotids were weak.</td>
<td>Severe oligohydramnios at 36 weeks</td>
<td>LSCS done</td>
<td>Live baby</td>
</tr>
<tr>
<td>5</td>
<td>Goyal et al. [9] 2020</td>
<td>25 years G 1</td>
<td>Known case of TA. Now admitted with c/o Left sided chest pain HTN</td>
<td>Renal involvement ITAAS score 9 with</td>
<td>LSCS done</td>
<td>Live baby</td>
</tr>
<tr>
<td>6</td>
<td>Raka and Singh [10] 2022</td>
<td>G1 21 years</td>
<td>Cold, sneezing -15 days Briut heard over Right and left carotid Rt radial art.</td>
<td>Feeble radial pulse, BP readings variable in both arms.</td>
<td>LSCS done</td>
<td>Live baby</td>
</tr>
<tr>
<td>7</td>
<td>Present case 2023</td>
<td>30 years G2 P1</td>
<td>c/o headache O/E HTN</td>
<td>Known case of TA diagnosed during first pregnancy</td>
<td>LSCS done</td>
<td>Live baby</td>
</tr>
</tbody>
</table>

IUGR: Intrauterine growth restriction, LSCS: Lower segment cesarean section, BP: Blood pressure, TA: Takayasu’s arteritis, CT: Computed tomography, HTN: Hypertension

CONCLUSION

TA affects women of childbearing age but there is no exacerbating effect on pregnancy. However, women with active disease during pregnancy with extensive aortic involvement present with unfavorable obstetric outcomes. Inadequate control of vasculitis leads to an increased risk of maternal and fetal complications. Close monitoring of the disease progression by the multidisciplinary team gives good maternal and fetal outcome.

REFERENCES

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