STANDARD TREATMENT WORKFLOW (STW)

LEFT TO RIGHT SHUNT LESIONS

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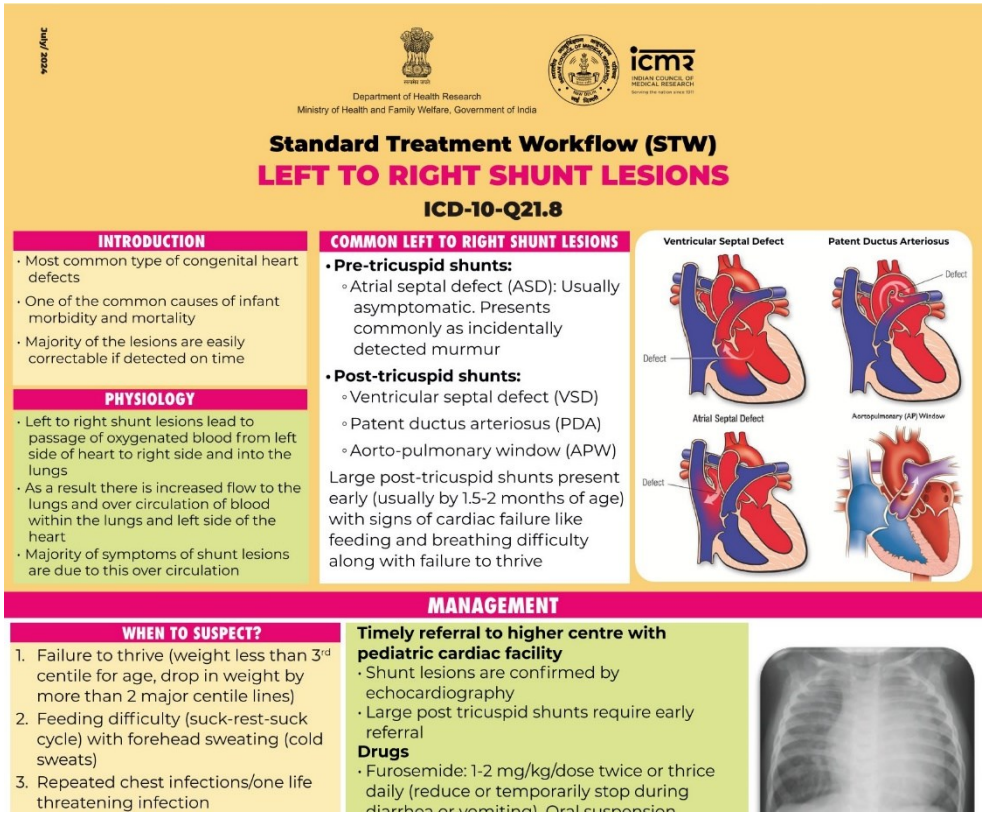

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Standard Treatment Workflow (STW)

LEFT TO RIGHT SHUNT LESIONS

ICD-10-Q21.8

INTRODUCTION

- Most common type of congenital heart defects
- One of the common causes of infant morbidity and mortality
- Majority of the lesions are easily correctable if detected on time

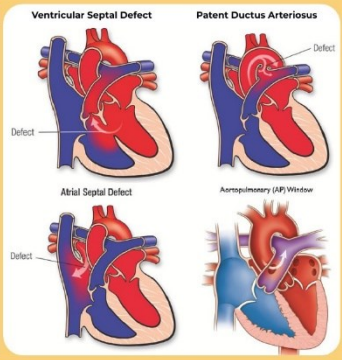
PHYSIOLOGY

- Left to right shunt lesions lead to passage of oxygenated blood from left side of heart to right side and into the lungs
- As a result there is increased flow to the lungs and over circulation of blood within the lungs and left side of the heart
- Majority of symptoms of shunt lesions are due to this over circulation

COMMON LEFT TO RIGHT SHUNT LESIONS

- **Pre-tricuspid shunts:**
  - Atrial septal defect (ASD): Usually asymptomatic. Presents commonly as incidentally detected murmur
- **Post-tricuspid shunts:**
  - Ventricular septal defect (VSD)
  - Patent ductus arteriosus (PDA)
  - Aorto-pulmonary window (APW)

Large post-tricuspid shunts present early (usually by 1.5-2 months of age) with signs of cardiac failure like feeding and breathing difficulty along with failure to thrive



MANAGEMENT

WHEN TO SUSPECT?

1. Failure to thrive (weight less than 3rd centile for age, drop in weight by more than 2 major centile lines)
2. Feeding difficulty (suck-rest-suck cycle) with forehead sweating (cold sweats)
3. Repeated chest infections/one life threatening infection
4. Baseline tachypnea with subcostal and intercostal retractions:
   - Rate > 60/min in less than 1 year old
   - Rate > 50/min between 1-2 year old
5. Tachycardia:
   - Rate > 160/min in less than 1 year old
   - Rate >140/min between 1-2 year old
6. Bounding (high volume) pulse (in PDA and APW)
7. Precordial bulge with active precordium
8. Loud second heart sound, gallop rhythm, ejection systolic murmur, mid-diastolic murmur (Large shunts may not have loud murmurs)
9. Hepatomegaly
10. Dysmorphic features: Down syndrome are known to be associated with Atrioventricular septal defect(AVSD)
11. Abnormal peripheral pulses especially feeble lower limb pulses

Timely referral to higher centre with pediatric cardiac facility

- Shunt lesions are confirmed by echocardiography
- Large post tricuspid shunts require early referral

Drugs

- Furosemide: 1-2 mg/kg/dose twice or thrice daily (reduce or temporarily stop during diarrhea or vomiting). Oral suspension contains 10 mg/ml. So can be given as 0.1 ml/kg/dose twice or thrice daily
- Add Spironolactone if Furosemide is administered more frequently than once daily
- Digoxin: 5 microgram/kg/dose twice daily. Oral preparation contains 50 microgram/ml. So can be given as 0.1 ml/kg/dose twice daily

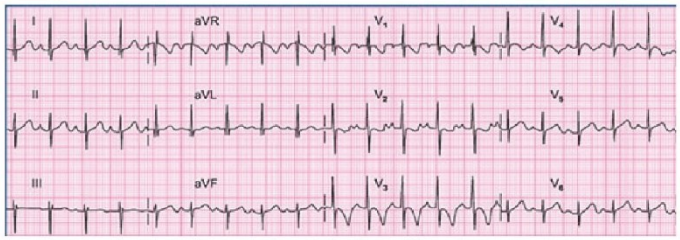
General Advice

- Educating parents about importance of maintaining hygiene to prevent infections
- Promoting breastfeeding if tolerated. If breastfeeding is difficult then teach gavage/spoon feeding, preferably with expressed breast milk
- Use top milk in case of reduced breastmilk output. Average volume intake should be approximately 120 mL/kg/day
- Include energy dense weaning foods in those beyond 6 months of age
- Continue vaccination as per Indian Academy of Pediatrics (IAP) schedule
- Vitamin D3, calcium and iron supplementation to be continued as per IAP recommendations and clinical requirement

Cardiomegaly & increased vascular markings in shunt lesion

Harrison sulcus

Precordial bulge (left side)



12-lead ECG showing left axis deviation in a patient with AV septal defect

INVESTIGATIONS

Essential

- X-ray Chest, Echo
- ECG - To watch for unexpected abnormal axis, rate, rhythm and QRS complex
- CBC, Electrolytes - Depending on clinical conditions and specific clinical circumstances

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TIMELY CORRECTION OF SHUNT LESION ENABLES NEAR NORMAL QUALITY OF LIFE