

STANDARD TREATMENT WORKFLOW (STW)

LEFT TO RIGHT SHUNT LESIONS

Krishna Kumar¹, Saurabh Gupta², Shreepal Jain³, Ritchie Sharon Solomon⁴, Navaneetha Sasikumar⁵, Debashree Ganguly⁶

¹Amrita Institute of Medical Sciences, Kochi, Kerala; ²All India Institute of Medical Sciences Delhi; ³Wadia Children's Hospital, Mumbai; ⁴Institute of Child Health, Chennai; ⁵Amrita Institute of Medical Sciences, Kochi, Kerala; ⁶RN Tagore Hospital, Kolkata, West Bengal

CORRESPONDING AUTHOR

Dr Krishna Kumar, Amrita Institute of Medical Sciences, Kochi, Kerala

Email: kumar_rk@yahoo.com

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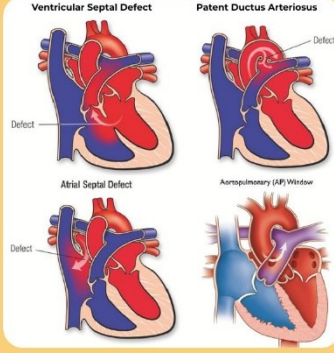

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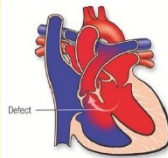
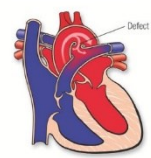
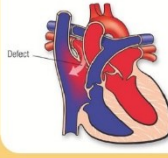


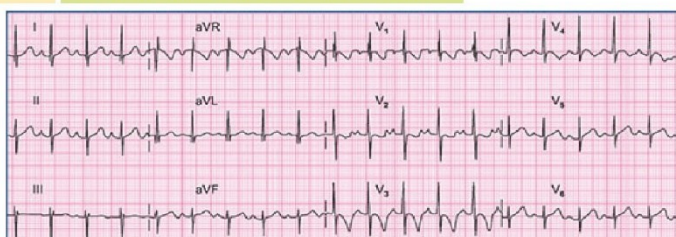
ICD-10-Q21.8

INTRODUCTION	COMMON LEFT TO RIGHT SHUNT LESIONS	Diagrams
<ul style="list-style-type: none">Most common type of congenital heart defectsOne of the common causes of infant morbidity and mortalityMajority of the lesions are easily correctable if detected on time	<ul style="list-style-type: none">Pre-tricuspid shunts:<ul style="list-style-type: none">Atrial septal defect (ASD): Usually asymptomatic. Presents commonly as incidentally detected murmurPost-tricuspid shunts:<ul style="list-style-type: none">Ventricular septal defect (VSD)Patent ductus arteriosus (PDA)Aorto-pulmonary window (APW) <p>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</p>	
PHYSIOLOGY	MANAGEMENT	
<ul style="list-style-type: none">Left to right shunt lesions lead to passage of oxygenated blood from left side of heart to right side and into the lungsAs a result there is increased flow to the lungs and over circulation of blood within the lungs and left side of the heartMajority of symptoms of shunt lesions are due to this over circulation	<p>WHEN TO SUSPECT?</p> <ol style="list-style-type: none">Failure to thrive (weight less than 3rd centile for age, drop in weight by more than 2 major centile lines)Feeding difficulty (suck-rest-suck cycle) with forehead sweating (cold sweats)Repeated chest infections/one life threatening infection <p>Timely referral to higher centre with pediatric cardiac facility</p> <ul style="list-style-type: none">Shunt lesions are confirmed by echocardiographyLarge post tricuspid shunts require early referral <p>Drugs</p> <ul style="list-style-type: none">Furosemide: 1-2 mg/kg/dose twice or thrice daily (reduce or temporarily stop during diarrhea or vomiting). Oral suspension	



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<p style="text-align: center; margin: 0;">INTRODUCTION</p> <ul style="list-style-type: none"> • 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 	<p style="text-align: center; margin: 0;">COMMON LEFT TO RIGHT SHUNT LESIONS</p> <ul style="list-style-type: none"> • Pre-tricuspid shunts: <ul style="list-style-type: none"> ◦ Atrial septal defect (ASD): Usually asymptomatic. Presents commonly as incidentally detected murmur • Post-tricuspid shunts: <ul style="list-style-type: none"> ◦ Ventricular septal defect (VSD) ◦ Patent ductus arteriosus (PDA) ◦ Aorto-pulmonary window (APW) <p>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</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><small>Ventricular Septal Defect</small></p>  </div> <div style="text-align: center;"> <p><small>Patent Ductus Arteriosus</small></p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p><small>Atrial Septal Defect</small></p>  </div> <div style="text-align: center;"> <p><small>Aortopulmonary (AP) Window</small></p>  </div> </div>		
<p style="text-align: center; margin: 0;">PHYSIOLOGY</p> <ul style="list-style-type: none"> • 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 	<p style="text-align: center; margin: 0;">MANAGEMENT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #fff3cd; padding: 5px;"> <p style="text-align: center; margin: 0;">WHEN TO SUSPECT?</p> <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> • Rate > 60/min in less than 1 year old • Rate > 50/min between 1-2 year old 5. Tachycardia: <ul style="list-style-type: none"> • 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 </td> <td style="width: 50%; background-color: #fff3cd; padding: 5px;"> <p style="text-align: center; margin: 0;">Timely referral to higher centre with pediatric cardiac facility</p> <ul style="list-style-type: none"> • Shunt lesions are confirmed by echocardiography • Large post tricuspid shunts require early referral <p>Drugs</p> <ul style="list-style-type: none"> • 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. 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 <p style="text-align: center; margin: 0;">Precordial bulge (left side)</p>	 <p style="text-align: center; margin: 0;">12-lead ECG showing left axis deviation in a patient with AV septal defect</p>			
<p style="text-align: center; margin: 0;">INVESTIGATIONS</p> <p>Essential</p> <ul style="list-style-type: none"> • 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 				
<p style="text-align: center; margin: 0;">REFERENCES</p> <ol style="list-style-type: none"> 1. Khadilkar V, Yadav S, Agrawal K, Tamboli S, et al. Revised IAP Growth Charts for Height, Weight and Body Mass Index for 5 to 18-year-old Indian Children. Indian Pediatr 2015;52: 47-55 2. Saxena A, Relan J, Agarwal R, Awasthy N, Azad S, Chakrabarty M, Dagar KS, Devagourou V, Dharan BS, Gupta SK, Iyer KS, Jayranganath M, Joshi R, Kannan B, Katewa A, Kohli V, Kothari SS, Krishnamoorthy KM, Kulkarni S, Kumar RM, Kumar RK, Maheshwari S, Manohar K, Marwah A, Mishra S, Mohanty SR, Murthy KS, Rao KN, Suresh PV, Radhakrishnan S, Rajashekar P, Ramakrishnan S, Rao N, Rao SG, Chinnaswamy Reddy HM, Sharma R, Shivaprasadh K, Subramanyan R, Kumar RS, Talwar S, Tomar M, Verma S, Vijaykumar R. Indian guidelines for indications and timing of intervention for common congenital heart diseases: Revised and updated consensus statement of the Working group on management of congenital heart diseases. Ann Pediatr Cardiol. 2019 Sep; Dec(12):254-286. doi: 10.4103/apc.apc.32.19. PMID: 31516283; PMCID: PMC6716301. 3. Kumar RK, Prabhu S, Jain S, Venkatesh S, Ahmed Z. IAP Speciality series on Pediatric Cardiology. Jaypee Publishers, 2022, 3rd Ed: 267-320 				
<p>👉 TIMELY CORRECTION OF SHUNT LESION ENABLES NEAR NORMAL QUALITY OF LIFE</p>				
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