

図1.胎児循環

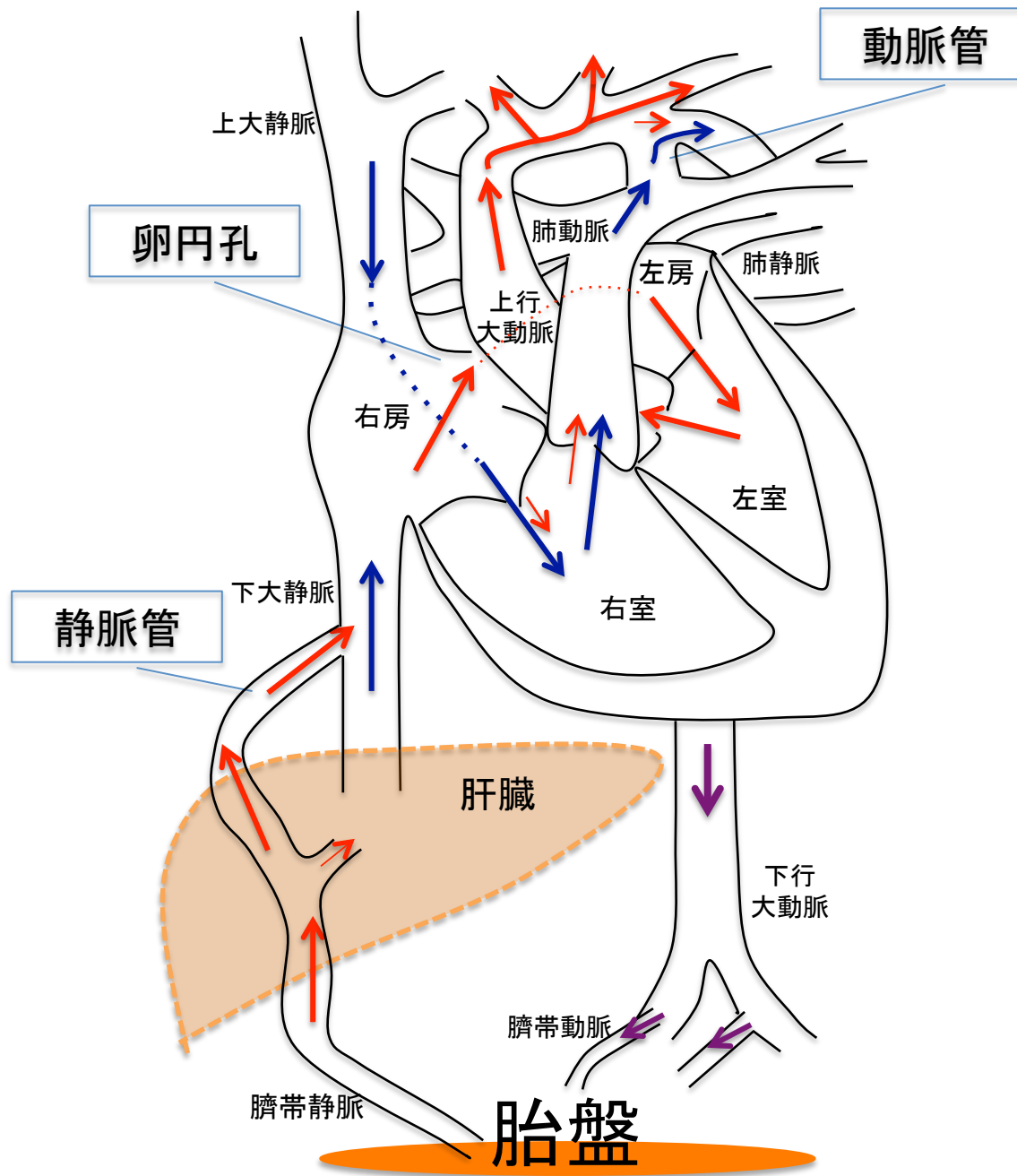


図2.並列循環と直列循環

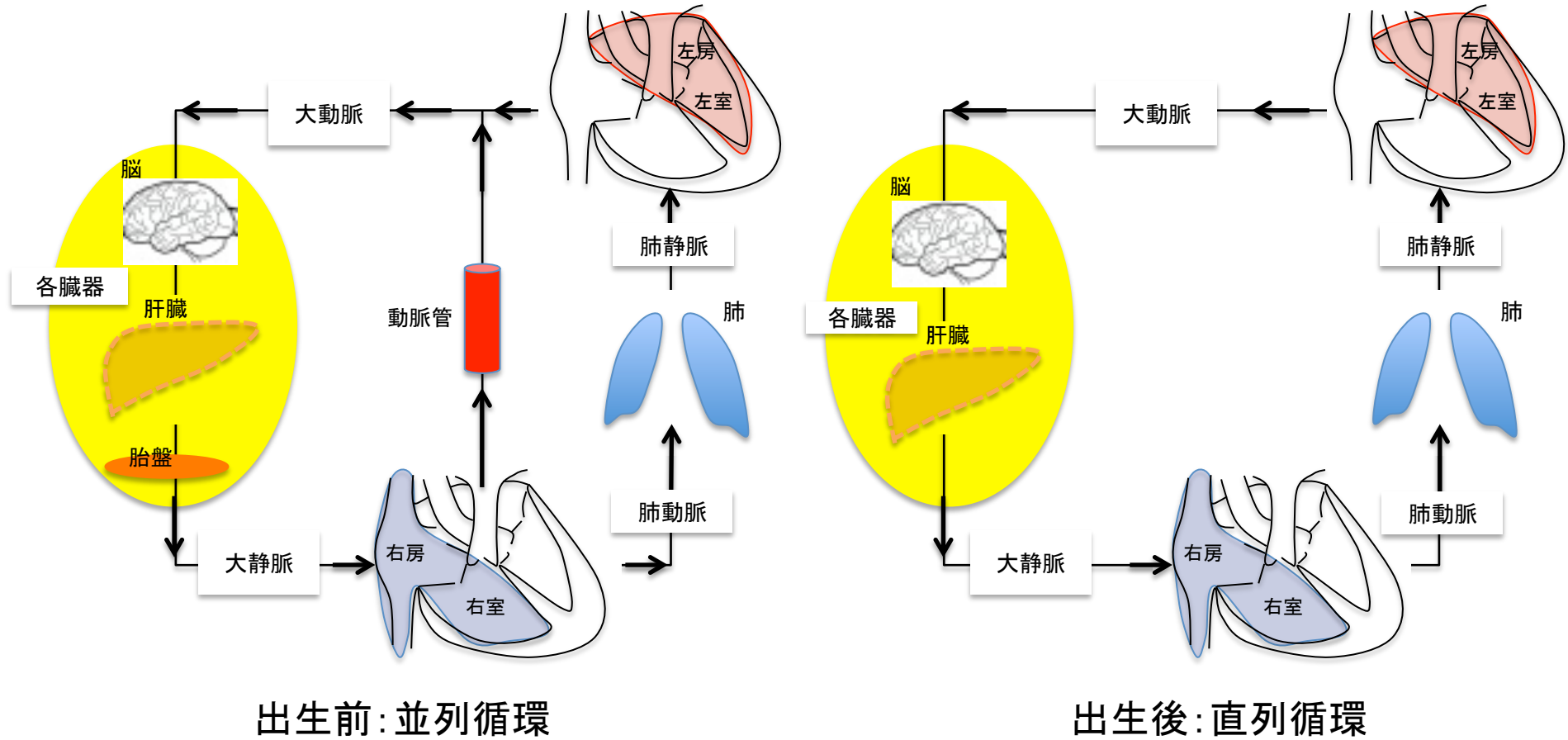
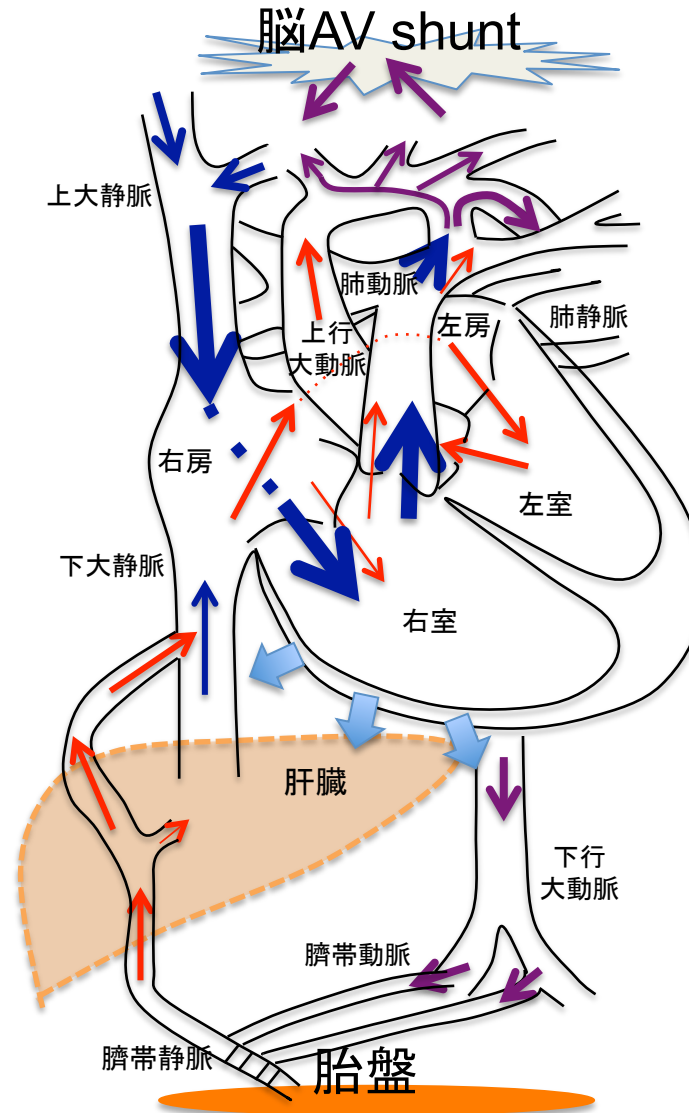


図3. 脳AV shuntを合併した場合の胎児循環



脳AVshuntを合併した胎児循環.右室からの血液は動脈管を通じて血管抵抗の低い胎盤にむけて下行大動脈へ流入.頭部の血管抵抗も低いため、下行大動脈と大動脈を逆行する血流に2分される.このため、上大静脈に還流する血流が増加し、右室への著明な容量負荷がかかる.

図4.

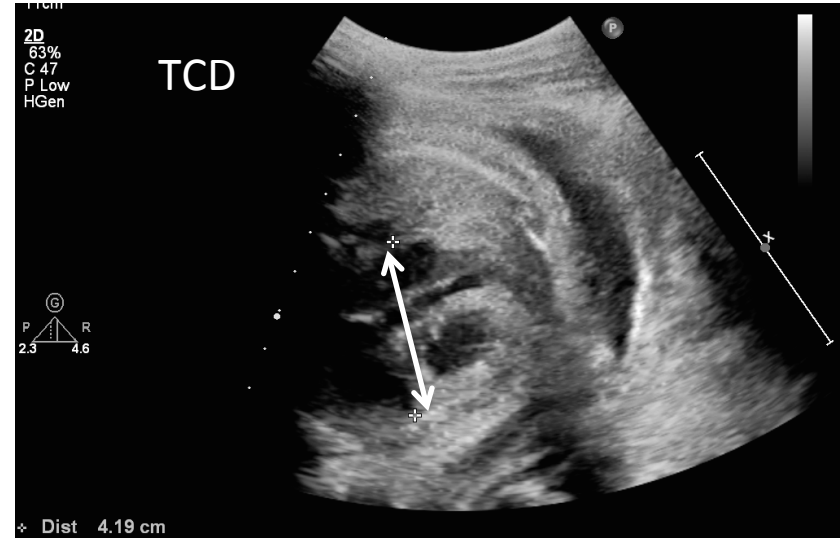
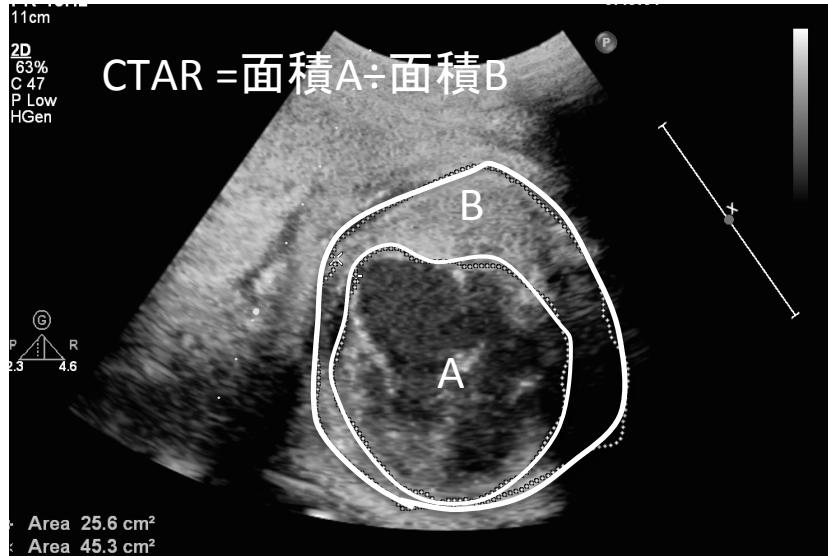


図5.

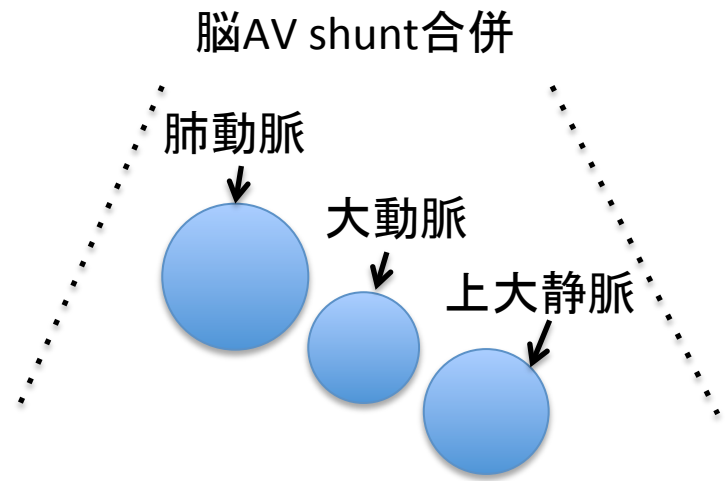
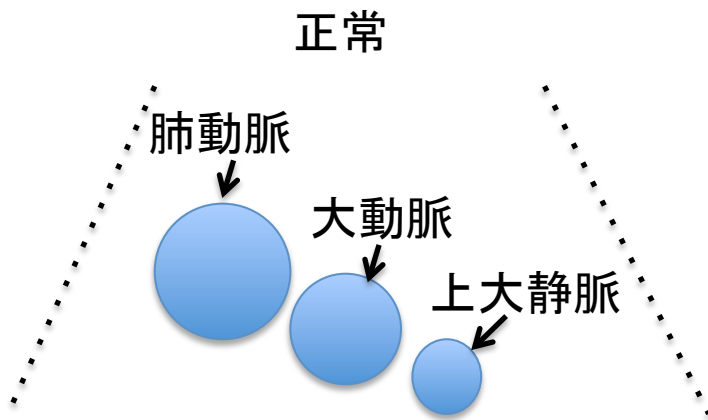


図6.

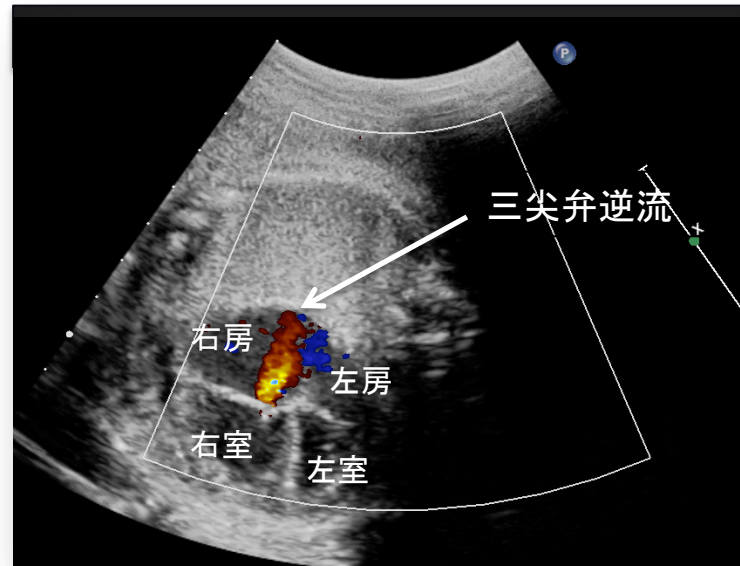


図7.

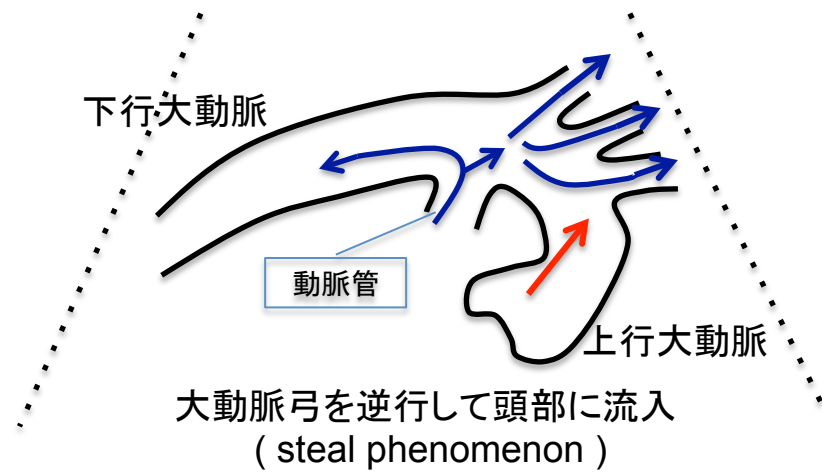








表1

Table I. Fetal cardiovascular profile score.

Category	Score 2	Score 1	Score 0
Hydrops	None	Ascites or pleural effusion or pericardial effusion	Skin edema
Cardiomegaly (cardiac area/thoracic area)	$>0.20$ and $\leq 0.35$	$0.35-0.50$	$>0.50$ or $<0.20$
Cardiac function	Normal TV and MV, biphasic diastolic filling	Holosystolic TR	Holosystolic MR, monophasic diastolic filling
Arterial umbilical Doppler			
Venous Doppler UV and DV			

TV, tricuspid valve; MV, mitral valve; TR, tricuspid regurgitation; MR, mitral regurgitation; UV, umbilical vein; DV, ductus venosus.

## 表2

**TABLE 4. Bicêtre neonatal evaluation score<sup>a</sup>**

Points	Cardiac function	Cerebral function	Respiratory function	Hepatic function	Renal function
5	Normal	Normal	Normal	—	—
4	Overload, no medical treatment	Subclinical, isolated EEG abnormalities	Tachypnea, finishes bottle	—	—
3	Failure; stable with medical treatment	Nonconvulsive intermittent neurologic signs	Tachypnea, does not finish bottle	No hepatomegaly, normal hepatic function	Normal
2	Failure; not stable with medical treatment	Isolated convulsion	Assisted ventilation, normal saturation FIO <sub>2</sub> < 25%	Hepatomegaly, normal hepatic function	Transient anuria
1	Ventilation necessary	Seizures	Assisted ventilation, normal saturation FIO <sub>2</sub> > 25%	Moderate or transient hepatic insufficiency	Unstable diuresis with treatment
0	Resistant to medical therapy	Permanent neurological signs	Assisted ventilation, desaturation	Abnormal coagulation, elevated enzymes	Anuria

<sup>a</sup> EEG, electroencephalogram; FIO<sub>2</sub>, fractional inspired oxygen. Maximal score = 5 (cardiac) + 5 (cerebral) + 5 (respiratory) + 3 (hepatic) + 3 (renal) = 21.

図8.

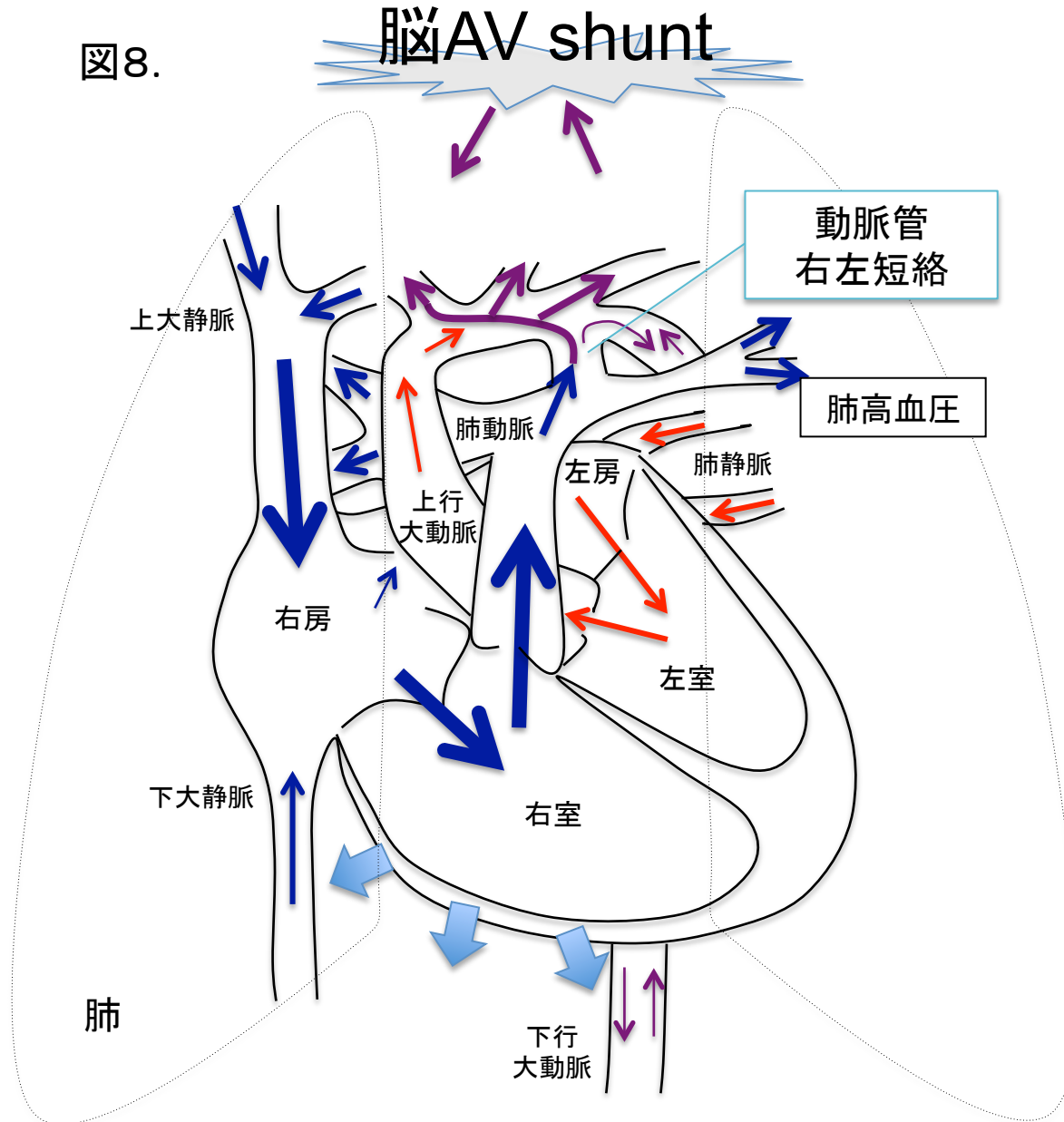


図7. 出生後、肺血管抵抗が低下し肺血流が増加する。大量の短絡による肺血流増大は肺うっ血を生じ、肺うっ血は反射性の肺小動脈収縮をもたらす。肺高血圧は持続し、動脈管を右-左短絡することになる。また右房圧も高い状態が続き卵円孔を右-左短絡する。いわゆる胎児循環遺残となりチアノーゼを生じる。



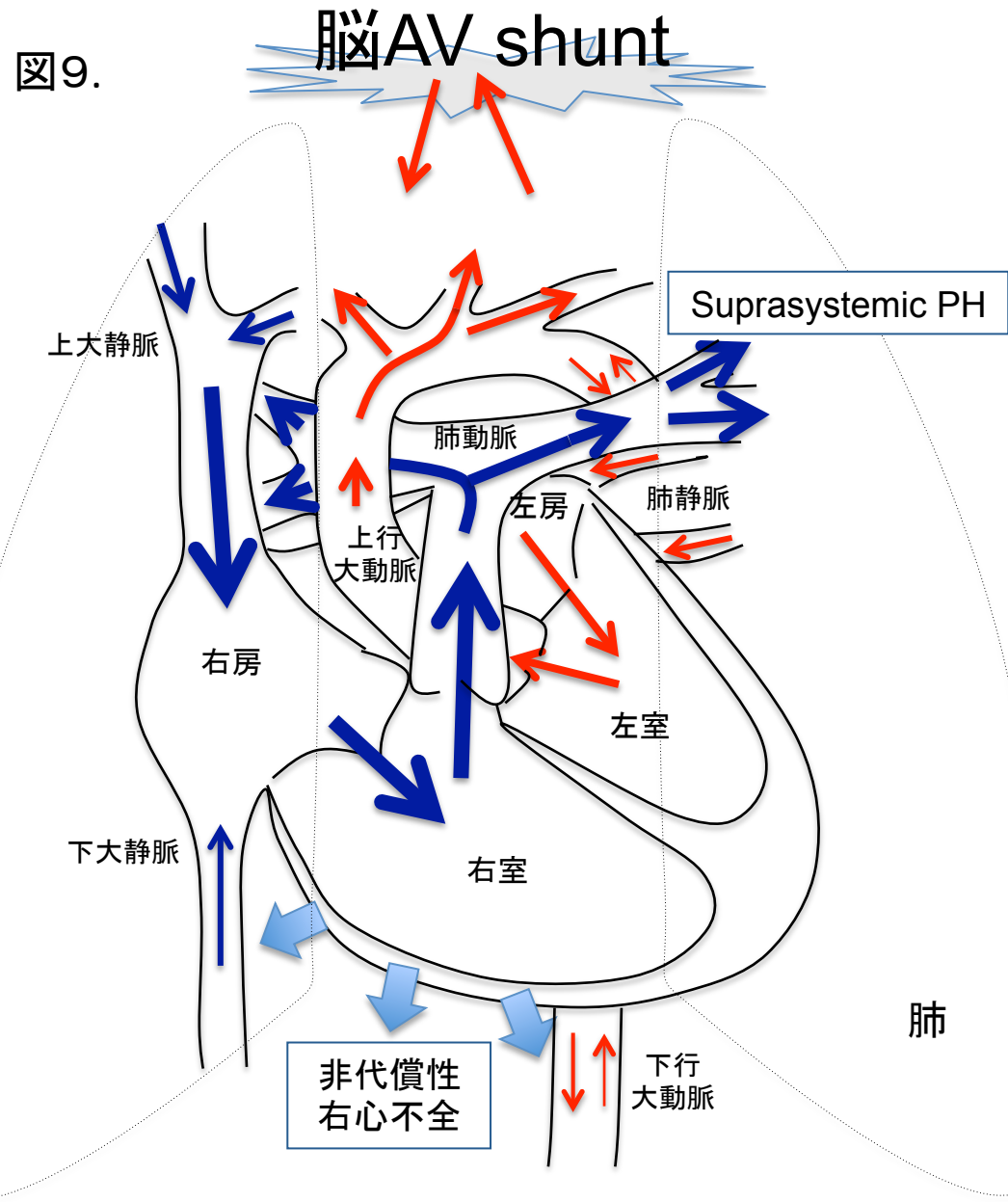


図8.動静脈短絡量が多い最重症例. 肺血流量増加し、肺高血圧を生じる.卵円孔、動脈管の血流は、右左短絡となり、更なる右室へ容量負荷がかかる.この状況で、動脈管が閉鎖すると、体血圧を上回る肺高血圧(suprasystemic PH)となり非代償性右心不全に陥る.