

선천성 태아 기형에 대한 태아 수술의 현황

[illegible]

(lower uterine section)

가

^{10,11} 50

, 6

가

. 4

tocolytics

, 4

가

, social worker

fetal treatment

coordinator

가

가

(Traversing the uterus)

가

, 1)

(ultrasonographically-guided percutaneous intervention), 2)

(FETENDO) , 3)

가

가

supine

lithotomy

1)

(ultrasonographically-guided percutaneous intervention)

(needle drainage)

shunt

가

가

percutaneous radio-frequency ablation

. Shunt catheter

radio frequency device

2.0-2.5

mm

2)

(FETENDO)

가

(laparotomy)

CO₂

가

crystalloid solution

1-5 mm

. UCSF

5 mm

가

trocar

^{12,13}

3)

(low transverse)

. Abdominal ring retractor()

()

pulseoxymetry

monitor

fibrin glue

monitor가

(tocolysis)

¹⁴

inferior epigastric vessels

ligation

가

가

(membrane separation)

가

halogenated inhalation

magnesium sulfate, beta-sympathomimetics, indomethacin, nitroglycerin

가

1)

(congenital hydronephrosis)

(dysplastic renal morphogenesis)

¹⁸⁻²²

가

가

가

(bilateral renal agenesis),

(severe renal hypoplasia),

(multicystic dysplastic kidney)

가

가

가

cortical cysts²⁴

echogenecity

renal dysplasia

renal dysplasia

(hypotonic)

가

40

가

mOsm)

(sodium<100 mEq/L, chloride<90 mEq/L, osmolality<210

nuclear magnetic resonance spectroscopy

proton

calcium 2-microglobulin level²⁵

가

collecting system

가

가

Na, Cl, osmolality

open fetal surgery가

Open surgery

(vesicoamniotic shunt)

300 UCSF fetal treatment center 8
 open surgery .³
 . 1981 bilateral ureterostomies⁹
 . 7 18-24 bladder marsupialization .
 8 6 32-36 . 7
 .
 2 .
 6 4 .
 (pulmonary hypoplasia) .
 4 9 .
 3
 3 5 가 가

catheter
 가 . -
 .^{26,27} - open surgery
 open surgery
 catheter malfunction, obstruction .
 open surgery
 . open surgery
 open surgery
 가 . open surgery
 catheter shunt
 .
 가 .

2) (congenital diaphragmatic hernia)

가 60-70% .²⁸
 20-27% .²⁹
 가 . hypoplasia
 .
 가
 가 가
 .
 intrtathoracic balloon
 .
 .³⁰
 가

가
가
가 (low lung-to
head ration: LHR) . UCSF
100% 56%
LHR LHR
100% 0.6-1.35 61%, 0.6
가 32 가
33
3.6-9% 18
21 34,35
가
36
10 가
가
가
(liquid ventilation)
39,40 41,42

3) (CCAM) (SCT)
(benign) 가
가
(CCAM) (SCT)
CCAM (bronchioles)
가 43,44
(1) - (thoracoamniotic shunt)
가 , 2 3
(thoracotomy)
endoloop vascular endostapling

UCSF UPEN children's hospital , CCAM
 134 120 가 79
 76 3 -
 25
 16
 13 , - 3
 13 8
 SCT . CCAM
 가 SCT 가
 vascular shunt
 hypovolemia
 UCSF 17 SCT 12
 5
 7 3 , 5
 가 .⁴⁶ SCT 가
 가 .⁴⁷⁻⁴⁹ SCT
 CCAM 가
 . Radiofrequency ablation
 vascular shunt

4) (Twin anomalies)

10-15%
 .⁵⁰ 가 (twin twin transfusion syndrome, TTTS)
 (AA), (AV),
 (VV)
 가
 가
 가
 TTTS
 80% .⁵¹ 가
 가 .^{52,53}
 TTTS 가
 가 (amnioreduction)
 TTTS
 가 , International Amnioreduction Registry

58% .⁵⁴

1.0-2.0 mm 가 , 3.0-5.0 mm

TTTS

50-67% .⁵⁵⁻⁶⁰

(twin-reverse arterial perfusion, TRAP)

(monozygote) 1% 3%

가 (pump twin) / (acardiac/anencephalic)

50-75%

가

thrombogenic coils fibrin glues

^{61,62}

radiofrequency ablation UCSF (pump twin)

90%

5) (Meningomyelocele, MMC)

hindlimb , hindbrain (Chiari II malformation)

가 가

가 (rat), ,
^{5,6,8,63-65}

hind limb

^{5,7}

춧

⁶⁶⁻⁶⁸

^{68,69}

hind limb

가 hindbrain

가

NIH 가 , 가

가

가

가
radiofrequency ablation

가

(gene therapy)

가

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