Povidone-iodine Pleurodesis in the management of Congenital Chylothorax: a Case Report and Literature Review

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Obliteration of the pleural space, either chemically or surgically is one of procedures used to manage refractory chylothorax. Povidone iodine (PVI) has been shown to be safe and effective for chemical pleurodesis in several studies in adult [1]. Nevertheless, in neonates, the use of PVI to perform chemical pleurodesis for refractory congenital chylothorax (CCT) was reported in only few cases we studies and still nonconsensual. We aim to add our own experience to previous reports to contribute in assessment of this procedure in newborns.

A 3050 g, female neonate, was delivered at term via elective cesarean. At birth, she presented moderate respiratory distress. Chest radiography showed right abundant pleural fluid effusion (figure1). Chest CT scan (hours 44 of life) confirmed the right pleural effusion was compressive (fig2).

Thoracentesis brought 130 ml of straw-colored liquid (figure3).

Diagnosis of chylothorax was confirmed by pleural fluid analysis (figure4).

A right chest tube was performed and kept for 4 days. Daily effusion volume was 49 ml/kg/day under medium-chain triglyceride enriched formula. Recurrence of effusion happened 48 hours after removal of the drain requiring the use of a second thoracentesis at 14 days of life (figure 5). Nosocomial infection was declared and treated at day 15 of life. At 16 days, chemical pleurodesis was performed after obtaining informed parental consent. The total amount of extracted liquid was 830 ml before pleurodesis (45 ml/kg/day).

PROCEDURE: Intrapleural instillation of 5ml PVI 4% was carried out through the chest tube under systemic anesthesia (Fentanyl). We cleared the chest tube with 10 ml of physiologic serum and we clamped it for 5 hours, then we remove the clamp. No ventilation support was necessary.

AFTER PROCEDURE: Impressive reduction of the daily flow (10 ml/kg/day) was noted the following 48 hours (total of 65 ml) then, pleural liquid effusion was completely and definitively dried (figure 6). The chest tube was kept for right moderate pneumothorax occurred 24 hours after the procedure and completely resolved 5 days after. No other complication was noted, spatial respiratory distress or any allergic manifestation. The chest tube was definitively removed 7 days after the procedure. She remained clinically and radiologically asymptomatic 9 months after pleurodesis. Biologic functions spatially renal, thyroid tests stilled normal before and after instillation.

PVI pleurodesis seems to be an effective and inoffensive means for management of refractory congenital chylothorax and may represent a good alternative to surgery. Nevertheless, severe adverse effects are possible in hard situations that need to be excluded. Randomized studies on large neonatal population are required to precise: the effective for chemical pleurodesis in several studies in adult [1].

**Ref year** | **Case** | **Gest. (Wk/WKs)** | **Weight (g)** | **Diagnosis** | **Site Age at instill (days)** | **Volume / instill (ml)** | **Type of Betadine®** | **Clamping duration (h)** | **Result** | **Delay of resolution (days)** | **Severe adverse effects of PVI** | **Outcome** |
---|---|---|---|---|---|---|---|---|---|---|---|---|
[2003] 4 | 3 | 2500 | B, CIC | R(65) | 10 | Scrub 4% | 4 | Success (16) | None | Survival | Survival |
[2003] 4 | 3 | 3000 | Diffuse lymphangiolesthosis/ CPL | L (22,26) | 7 | Scrub 4% | 3 | Failure | Yes | Death | |
[2006] 4 | 3 | 3000 | B, CIC | (11) | 3 | Dermique 4% | 4 | Success (10) | None | Survival | Survival |
[2010] 4 | 3 | 3000 | Elymphangiolesthosis | (35) | 6 | Dermique 4% | 5 | Success (N/A) | None | Survival | |
[2014] 4 | 3 | 3000 | Bonoonan? | B | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
[2015] 4 | 3 | 3000 | Acquired, L | (24) | 4 | Scrub 4% | 6 | Success (1) | None | Survival | Survival |
[2015] 4 | 3 | 3000 | Acquired, L | (34) | 4 | Scrub 4% | 4 | Success (1) | None | Survival | Survival |
[2015] 4 | 3 | 3000 | Acquired, B/SVC thrombosis | (36) | 4 | Scrub 4% | 4 | Success (1) | None | Survival | Survival |
[2015] 4 | 3 | 3000 | Acquired, B/CDH | (27) | 2 | Success (1) | None | Survival | |
[2015] 4 | 3 | 3000 | Acquired, B/CDH | (27) | 2 | Success (1) | None | Survival | |
[2016] 4 | 3 | 3000 | CIC, R | (13) | 5 | Success (1) | None | Survival | |
[2016] 4 | 3 | 3000 | CIC, R | (13) | 5 | Success (1) | None | Survival | |
[2016] 4 | 3 | 3000 | CIC, R | (13) | 5 | Success (1) | None | Survival | |
[2016] 4 | 3 | 3000 | CIC, R | (13) | 5 | Success (1) | None | Survival | |

AVERAGE TERM = 26W (22W-27W+3D)