Postoperative candidal mediastinitis in children: two case presentation

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Introduction

Previous reports indicated that postsurgical candidal deep sternal wound infections have an extremely high mortality rate, but the incidence rate of such complication in pediatric cardiac surgery is unknown. Here we report two pediatric cases of candidal deep sternal wound infection after open-heart surgery.

Case 1

A 1-year 9-month old boy presented with prolonged fever that developed after total cardiopulmonary connection was performed. Pus discharge from the retrosternal space was observed on postoperative day 4 (POD4). MRSA was isolated from his blood and pus, and he was treated with vancomycin and surgical debridement. In spite of treatment, the wound condition gradually deteriorated. *Candida parapsilosis* was isolated from the sternal wound, and antifungal therapy with liposomal amphotericin B (L-AMB) was started. After treatment, the laboratory data improved and the wound culture was negative. The patient was discharged on POD132.

Figure 1. Clinical course of Case 1.

Discussion

- In a retrospective study of adult population, in-hospital and 1-year mortality for postoperative *Candida* deep sternal wound infection was 35% and 41%, respectively. (Ann Thorac Surg 2009;88:1905-9)
- As to pediatric population, we could not find such systematic analyses, and the morbidity and mortality rate of candidal mediastinitis is unknown.
- Neither CLSI nor EUCAST has defined breakpoints for *Candida lusitanae* yet.

Conclusion

Candidal mediastinitis is a rare but serious complication of cardiac surgery; some patients cannot be rescued in spite of early diagnosis and initiation of antifungal therapy. The choice and dosage of antifungal drugs according to the kind of pathogen and the status of the patient must be further investigated.

Case 2

Total cardiopulmonary connection was performed on a 3-year 10-month old girl with hypoplastic left heart syndrome. Postoperatively her sternal wound was left open in order to keep proper blood pressure. *Candida lusitanae* was isolated from the wound on POD8, and micafungin (MCFG) was started. Although blood culture was negative, *C. lusitanae* was constantly detected from the sternal wound until POD34 in spite of addition of voriconazole (VRCZ), wound debridement and daily lavage. Cardiac function gradually deteriorated, and she was deceased on POD55. Autopsy was not performed.

Figure 2. Clinical course of Case 2.

Abbreviations

5-FC, flucytosine; AMPH, amphotericin B; CFPM, cefepime; CPFG, caspofungin; F-FLCZ, fosfluconazole; L-AMB, liposomal amphotericin B; MCFCG, micafungin; MCZ, miconazole; MIC, minimal inhibitory concentration; NPWT, negative pressure wound therapy; SBT/ABPC, sulbactam/ampicillin; TAZ/PIPC, tazobactam/piperacillin; VCM, vancomycin; VRCZ, voriconazole

Table 1. MICs of *Candida parapsilosis* isolated from the wound of Patient 1.

AMPH	1
MCZ	1
FLCZ	1
ITCZ	0.25
5-FC	≤ 0.12
MCFCG	1
VRCZ	0.03

Table 2. MICs of *Candida lusitanae* isolated from the wound of Patient 2.

AMPH	0.5
MCZ	0.12
FLCZ	0.5
5-FC	≤ 0.12
MCFCG	0.06
VRCZ	≤ 0.03

Table 3. Breakpoints for *C. parapsilosis* according to the MICs from the M27-S4 CLSI documents.

	S	SDD	R
FLCZ	≤ 2.0	4.0	≥ 8.0
VRCZ	≤ 0.12	0.25-0.5	≥ 1.0
CPFG	≤ 2.0	4	≥ 8.0