



Multidrug-resistant *Klebsiella pneumoniae* Meningitis Successfully Treated with Intrathecal Colistin



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INTRODUCTION

Multidrug-resistant (MDR) gram-negative meningitis has become increasingly problematic in recent years. Aggressive treatment with appropriate antibiotics is imperative to eradicate the pathogen. Intrathecal (IT) colistin has been successfully used, however, this modality is potentially toxic and requires careful preparation to avoid contamination. Cerebrospinal

fluid (CSF) shunts catheter removal is an important adjunct to ensure a good outcome. The IT use of colistin is off-label in both Europe and the USA.

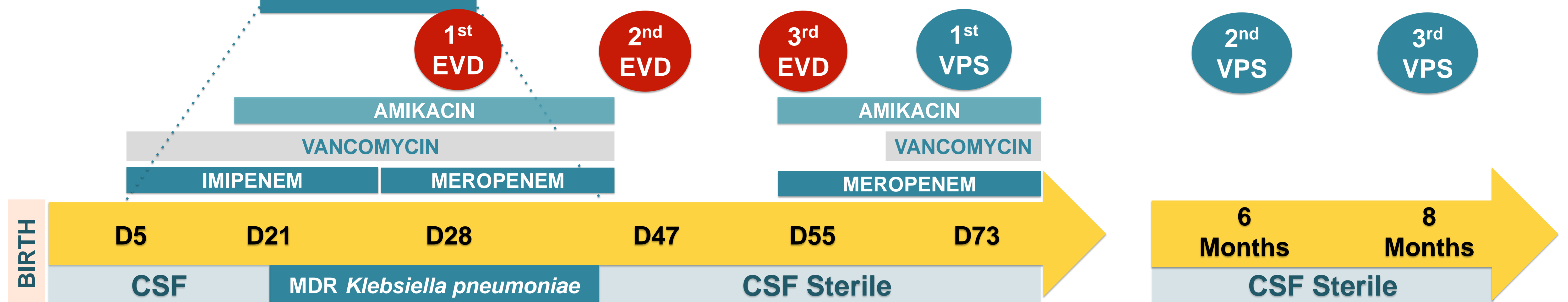
AIMS: To report one case of MDR *Klebsiella pneumoniae* meningitis with ventriculo-peritoneal shunt (VPS) infection effectively treated with IT colistin through a external ventricular drainage (EVD).

CASE REPORT

28 Weeks Gestation
APGAR Score 5/7/7
Birthweight – 1200g

Blood and CSF
MDR *Klebsiella pneumoniae*

Tetra-ventricular Hydrocephalus



9 Months
Psychomotor developmental delay
Admitted for Worsening Hydrocephalus

**MENINGITIS
PERITONITIS**

CSF and Peritoneal Fluid
MDR *Klebsiella pneumoniae*

Amikacin (MIC < 2 µg/ml → MIC = 4 µg/ml)
Meropenem (MIC < 0.25 µg/ml)

Intrathecal Colistin Dose, preparation

Dilute colistin with preservative-free NaCl 0.9% to a concentration of 5 mg/mL.

D1-D2 0,5mg/day q12h (v=0.1 mL)

D3-D5 1mg/day q12h (v=0.2 mL)

D6-D19 2mg/day q12h (v=0.4 mL)

Administration

Remove a volume of CSF equal to 0.9% sodium chloride plus the drug to administer. The maximum volume should not exceed 2 mL.

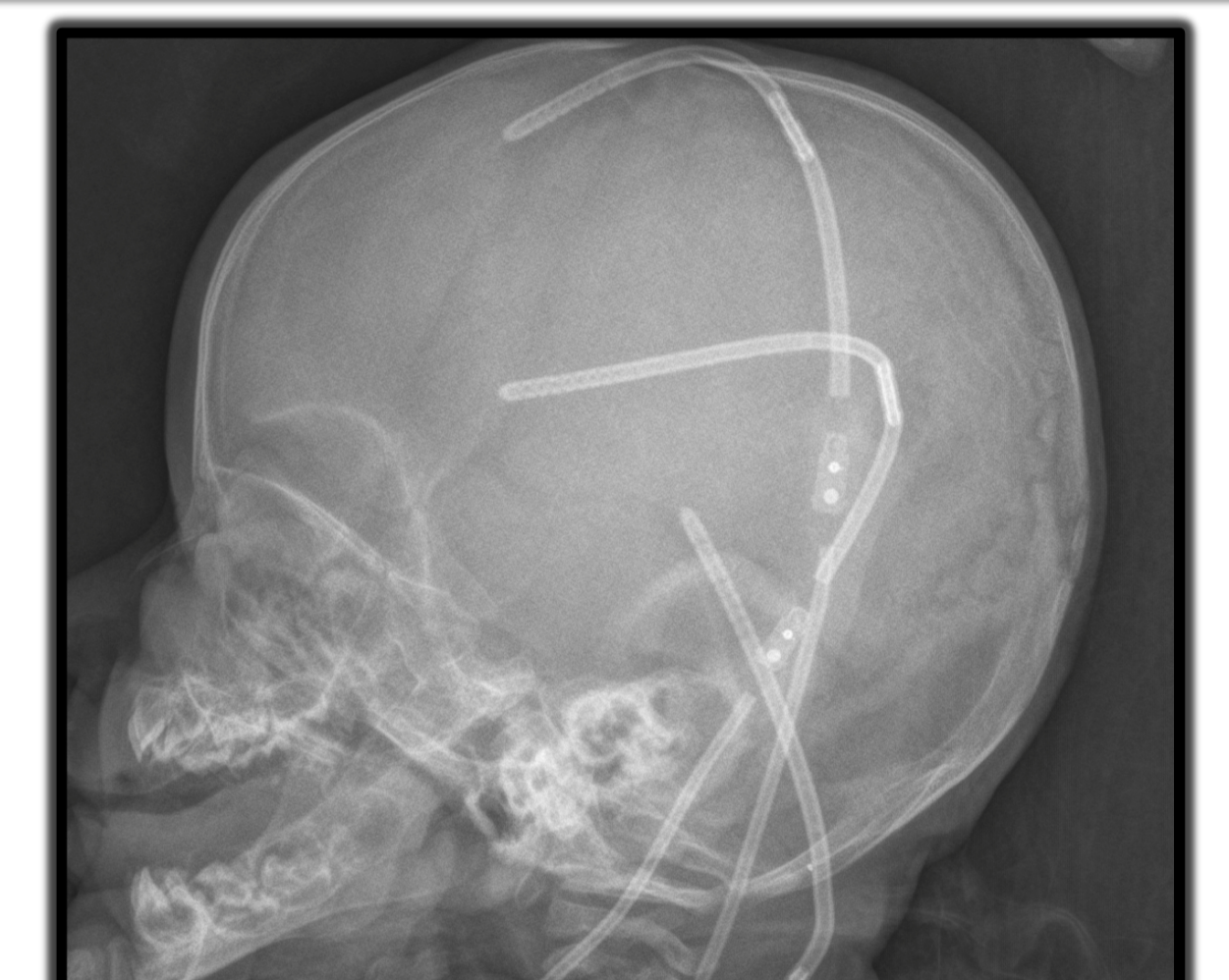
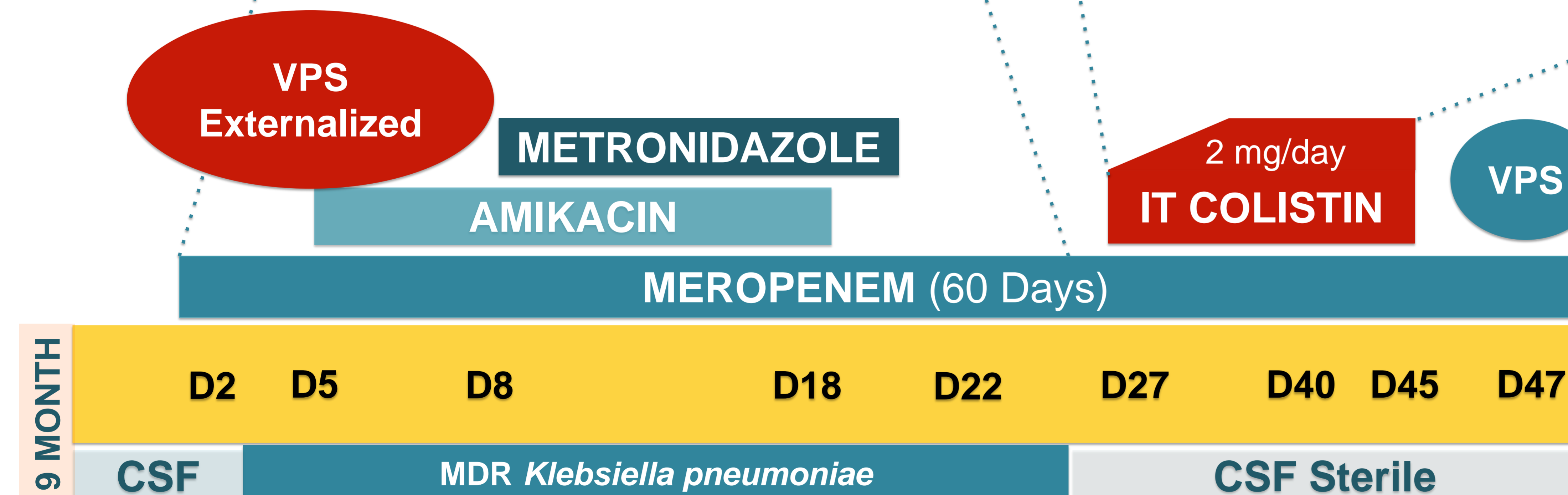


Image 1– Skull X-ray , VPS's



Image 2– CT scan with VPS's



After 12 Months

No recurrence

	D2	D5	D8	D18	D22	D27	D40	D45	D47
Leukocytes (UL)	1.6	520.0	>1000	128.0	32.0	142.0			
				Polymorphonuclear			Lymphocytes		
Glucose (mg/dL)	43.3	<10	<10	18.0	34.6	24.7			
Proteins (mg/dL)	46.3	389.3	489.6	136.8	374.5	92.9			

**Chemical
Meningitis**

Concerns?
Unapproved therapeutic
When to consider Colistin?
Secondary effects?

CONCLUSION

MDR *Klebsiella pneumoniae* meningitis with VPS infection constitute a severe complication with high morbidity and mortality. IT colistin can be considered a safe, effective, and practicable alternative treatment when parental administration fails and shunt removing becomes difficult. Though chemical meningitis could be a concern it reverts after drug ceasing. In this case although colistin was started late, the impossibility of VPS removal led us to start IT colistin. When to starts it, the optimal dosage and duration remains controversial.

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