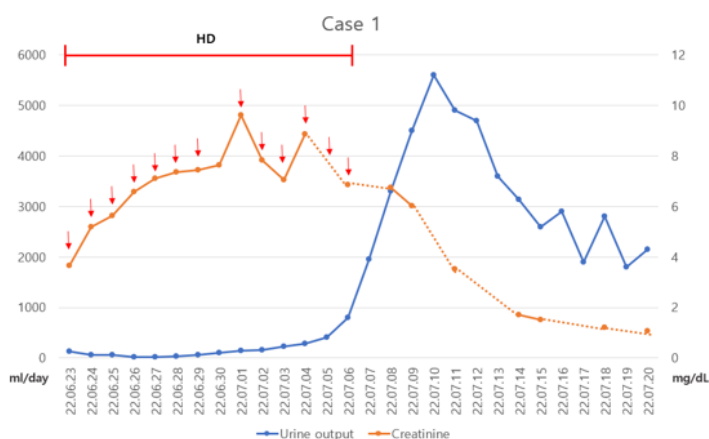


Two cases of postoperative rhabdomyolysis with different clinical courses

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Rhabdomyolysis is caused by the release of injured skeletal muscle cell components into circulatory system. Multiple risk factors for postoperative rhabdomyolysis have been identified including prolonged surgery, obesity, diabetes and hypertension. We present two cases of postoperative rhabdomyolysis after prolonged orthopedic operations with different clinical courses. Case 1 A 25-year-old male with a medical history of hypertension, diabetes mellitus, asthma and obesity, presented to the hospital with knee pain. The patient was diagnosed with lateral osteoarthritis and was scheduled to undergo operation. Pre operational laboratory workup revealed the following data (Table 1). One day after surgery, his had anuria and consulted to nephrology. Hemodialysis was performed due to oliguria and electrolyte imbalance. A total of 13 hemodialysis sessions were performed. The patient's urine output and creatinine levels were fully recovered (Figure 1). The patient is currently being followed up in outpatient surveillance for 1 year. Case 2 A 29-year-old male with a medical history of hypertension, fatty liver and obesity, presented to the hospital with knee pain. The patient was diagnosed with rupture of left anterior cruciate ligament and was scheduled to undergo implant removal operation. Pre-operational laboratory workup revealed in Table 1. He underwent surgery for 5.5 hours. After surgery, his laboratory workup revealed increased creatine kinase (CK) (Table 1). He had the urine output assessed immediately after the surgery, allowing for early initiation of massive hydration. Subsequently, the patient's condition improved and discharged with recovered CK and followed up with outpatient basis. These two patient both had risk factors of postoperative rhabdomyolysis. Case 1 patient's assessment was delayed due to lack of urine output monitoring and laboratory examination. On the other hand, Case 2 patient had immediate assessment of laboratory examination after prolonged operation. Based on these two cases in this study, we have become aware of the importance of prompt diagnosis and management in patients with risk factors for postoperative rhabdomyolysis.

Figure 1. Clinical course of case 1 patient.



HD, hemodialysis.

Table 1.

	Case 1	Case 2
Operation name	Lateral meniscus transplantation with allograft	Anterior cruciate ligament reconstruction with achilles allograft & Implant remove, knee
Risk factors		
Duration of operation	7 hours	5.5 hours
BMI	31.14	34.14
Intraoperative position	Supine	Supine
Pre-existing renal dysfunction	No	No
DM	Yes	No
HTN	Yes	Yes
Initial Laboratory data		
	Pre-operation	Post-operation
WBC (10 ³ /uL)	7.36	25.38
Hb (g/dL)	15.7	16.8
Platelet (10 ³ /uL)	306	496
BUN (mg/dL)	12	16
Creatinine (mg/dL)	0.75	2.10
AST (IU/L)	25	1,293
ALT (IU/L)	48	395
Total bilirubin (mg/dL)	0.73	1.75
Uric acid (mg/dL)	6.1	10.0
Phosphorus (mg/dL)	3.4	4.6
Total Calcium (mg/dL)	10.1	8.5
CK (IU/L)	-	>7,800
LDH (IU/L)	-	>6,600
Serum myoglobin (ng/mL)	-	>30,000.00
Urine myoglobin (ng/mL)	-	204.60
Na (mEq/L)	139	132
K (mEq/L)	4.3	6.2
Cl (mEq/L)	103	104
Total CO2 (mmol/L)	25.4	16.1
CRP (mg/dL)	0.89	4.73
Urine protein (mg/dL)	+- 10	++++ >1000
Urine RBC (/HPF)	<1	>30
Kidney replacement therapy	Yes (13 sessions)	No

BMI, body mass index; DM, diabetes mellitus; HTN, hypertension; WBC, white blood cell; Hb, hemoglobin; BUN, blood urea nitrogen; AST, aspartate aminotransferase; ALT, alanine aminotransferase; CK, creatine kinase; LDH, lactate dehydrogenase; CRP, C-reactive protein.