

Patient #	Age	Procedure	Aetiology	Complication	Spindle extraction technique	Success
1	70s	Reinforced sacroplasty	Osteoporosis	Intra-foraminal spindle	Supple biopsy forceps technique	Yes
2	70s	Reinforced sacro-iliac cementoplasty	Cancer	Intra-muscular spindle	Supple biopsy forceps technique	No
3	60s	Reinforced cervicotrochanteric region cementoplasty	Cancer	Intra-articular spindle	Supple biopsy forceps technique	No
					Cementing technique	Yes
4	70s	Reinforced humeral cementoplasty	Multiple Myeloma	Para-neurovascular bundle spindle	Cementing technique	Yes
5	60s	Reinforced iliac cementoplasty	Cancer	Intra-muscular spindle	Cementing technique	Yes
6	50s	Reinforced cervicotrochanteric region cementoplasty	Cancer	Trans-articular spindle	Cementing technique	Yes

Table 1 – Spindle extraction cases

Description of all spindle extraction cases performed in our study population. Two attempts have been made for 1 patient.

Patient #	Age	Procedure	Aetiology	Complication	Cement extraction technique	Success
1	60s	T6, T11, T12, L2 vertebroplasty and L1 kyphoplasty	Osteoporosis	3 cm cement leak in para-vertebral soft tissues on needle withdrawal	Resheating technique	Yes
2	60s	T9, T10, T11, T12, L1, L2, L3, L4 and L5 vertebroplasty	Osteoporosis	2 cm cement leak on needle withdrawal, reaching the skin	Needle holder technique	Yes
3	60s	Sacroplasty	Osteoporosis	3 cm cement leak in the gluteus medius on needle withdrawal	Resheating technique	No
					Cementing technique	No
					Needle holder technique	Yes
4	50s	T12, L1 vertebroplasty	Osteoporosis	Small spherical cement leak in intervertebral foramen	Supple biopsy forceps technique	Yes
5	50s	T4 vertebroplasty	Multiple myeloma	4 cm cement leak in para-vertebral soft tissues on needle withdrawal	Supple biopsy forceps technique	Yes
6	70s	C1 lateral mass vertebroplasty	Cancer	Small cement leak in the uvula	Supple biopsy forceps technique	Yes
7	30s	C1 lateral mass vertebroplasty	Cancer	Cement leak in the oral cavity	Supple biopsy forceps technique	No
					Bare hand extraction	Yes

Table 2 – Cement extraction cases

Description of all cement extraction cases performed in our study population. Multiple attempts have been made for 2 patients.