

ONLINE SUPPLEMENTARY DATA

Supplementary Table 1. Comparison of radiological features and surgery between included and excluded patients

	Patients included (n=17)	Patients excluded (n=58)
X-Ray	Pseudarthrosis located at the apex; Severe anterior column defect	Pseudarthrosis located above or below the apex; No obvious destruction of anterior column
CT	Narrow of the spinal canal caused by extensive lesions	No involvement of spinal canal
MRI	1. Hypointense signal intensity in T1 and T2 images; 2. Decreased spinal canal secondary to anterior extradural tissue or posterior hypertrophic ligamentum flavum; 3. Impingement of spinal cord	No spinal canal compression
Surgery	1. Anterior debridement; 2. PSO through pseudarthrosis and supplemental anterior fusion; 3. Decompression around the lesion	1. PSO below the pseudarthrosis; 2. No decompression or debridement around the pseudarthrosis

PSO: pedicle subtraction osteotomy

Supplementary Table 2. The correlation between MRI and the relevant histological findings.

MRI manifestation	Histological findings
Low signal intensity change in the disc space in T2-weighted imaging	Proliferation of fibrous tissue replace the normal structure
Low signal intensity band at the margin of vertebral endplate in T1-weighted imaging	Sclerotic subchondral bone revealed an unfused spinal segment
Widespread low signal intensity region within the vertebral body	Cartilaginous degeneration, fibrocartilage formation or fibrinous necrosis caused by due stress
Isolated vertebral segment with normal signal intensity in T2-weighted imaging but present with low signal intensity in T1-weighted imaging	Necrotic bone fragments enclosed by fibroblastic tissue

Supplementary Table 3. Histological changes of biologic inflammation.

Description of inflammatory histological changes	Proportion of each type of histologic lesion (%)
Dense fibrous tissue infiltrated by a small amount of plasma cells and lymphocytes	1.8%
Widespread small lymphocytes accompanied by hemosiderin	3.6%
Fibrillary fibrosis with scanty mononuclear inflammatory cells	5.4%
Breaching and erosions of vertebral endplate by non-specific granulation tissue growing from bone marrow	1.8%