

Figure S1. Representative imaging demonstrating the abnormal ossification of the joints or ligaments before treatment and the alterations observed after treatment with vitamin D alone. Abnormal ossification is indicated by arrows. (A) A 60-year-old female patient with osteoarthritis (OA). Before treatment, the physiological curvature of the cervical vertebrae was changed on X-ray examination, with abnormal ossification in the C2-C7 intervertebral space, mild spondylolisthesis in the C6 and C7 vertebral bodies and olecranon hyperplasia in the anterior margin of the C6 and C7 vertebral bodies. After medication, the abnormal ossification regressed, the olecranon hyperplasia became blunt, the C6 spondylolisthesis improved, and the curvature of the cervical spine returned to normal. (B) A 52-year-old male patient with spondylarthritis (SA). The C2-C7 intervertebral space was blurred due to abnormal ossification, which was alleviated after treatment. (C) A 50-year-old male patient with OA. Computed tomography (CT) images indicated osteophyte formation on the posterior upper margin of the C7 and T1 vertebral bodies. After treatment, the osteophyte formation was notably reduced, and a posterior joint space appeared. (D) A 72-year-old female patient with SA. The lateral radiograph of the lumbar spine demonstrated multiple intervertebral abnormal ossifications before treatment, which were alleviated, and the intervertebral space was widened after medication. (E) A 52-year-old male patient with OA. X-rays revealed bone spurs on both sides of the L4 vertebral body and hypertrophy of the transverse processes on both sides of the L5 vertebral body, which fused with the iliac crest. After medication, the bone spurs became blunt, the hypertrophic transverse processes were reduced, and a joint space appeared between the L4 vertebral body and the iliac spine. (F) A 76-year-old male patient with OA. Severe ossification was observed in the medial space of the left knee joint, with abnormal ossification in the intercondylar ridge. After medication, the abnormal ossification in the medial space was obviously regressed. (G) A 72-year-old female patient with rheumatoid arthritis (RA). X-ray revealed abnormal ossification in the knee joint. After treatment, the abnormal ossification was alleviated, and the joint space was widened with reduced intercondylar ridge. (H) A 64-year-old female patient with OA. X-rays demonstrated abnormal ossification in the knee joint. After treatment, the abnormal ossification was regressed, and the subluxation of the joint was improved. (I) A 27-year-old female patient with RA. X-rays indicated abnormal ossification in the right knee joint cavity. After treatment, a bilateral space appeared. (J) A 47-year-old male with RA. X-rays revealed severe ossification and stenosis of the knee joint space. After treatment, the abnormal ossification was alleviated, and the bilateral joint space was evident. (K) A 42-year-old male patient with OA. X-ray examination demonstrated abnormal ossification of the elbow joint and formation of osteophytes in the olecranon, radial head and coronoid process. After treatment, regression of abnormal ossification was observed. (L) A 38-year-old female patient with RA. Abnormal ossification was visible in the carpometacarpal wrist joint, which regressed after treatment. (M) A 37-year-old female patient with RA. There was abnormal ossification in the space of the finger joints. Regression of the calcified joints was observed after medication. (N) A 45-year-old female patient with SA. CT imaging demonstrated abnormal ossification of the L3/L4 posterior longitudinal ligament, which was alleviated after treatment. (O) A 51-year-old female patient with SA. CT imaging revealed abnormal ossification of the ligamentum flavum on both sides of L4/L5, particularly on the left side. After medication, regression of abnormal ossification could be observed. (P) A 23-year-old male patient with SA. CT imaging indicated L4/L5 disc herniation combined with strip abnormal ossification of the posterior longitudinal ligament. After treatment, the strip abnormal ossification disappeared. (Q) A 50-year-old male patient with SA. CT imaging demonstrated abnormal ossification of the right lateral recess of the L5/S1 ligamentum flavum, which regressed after treatment. OA, osteoarthritis; SA, spondylarthritis; CT, computed tomography; RA, rheumatoid arthritis.

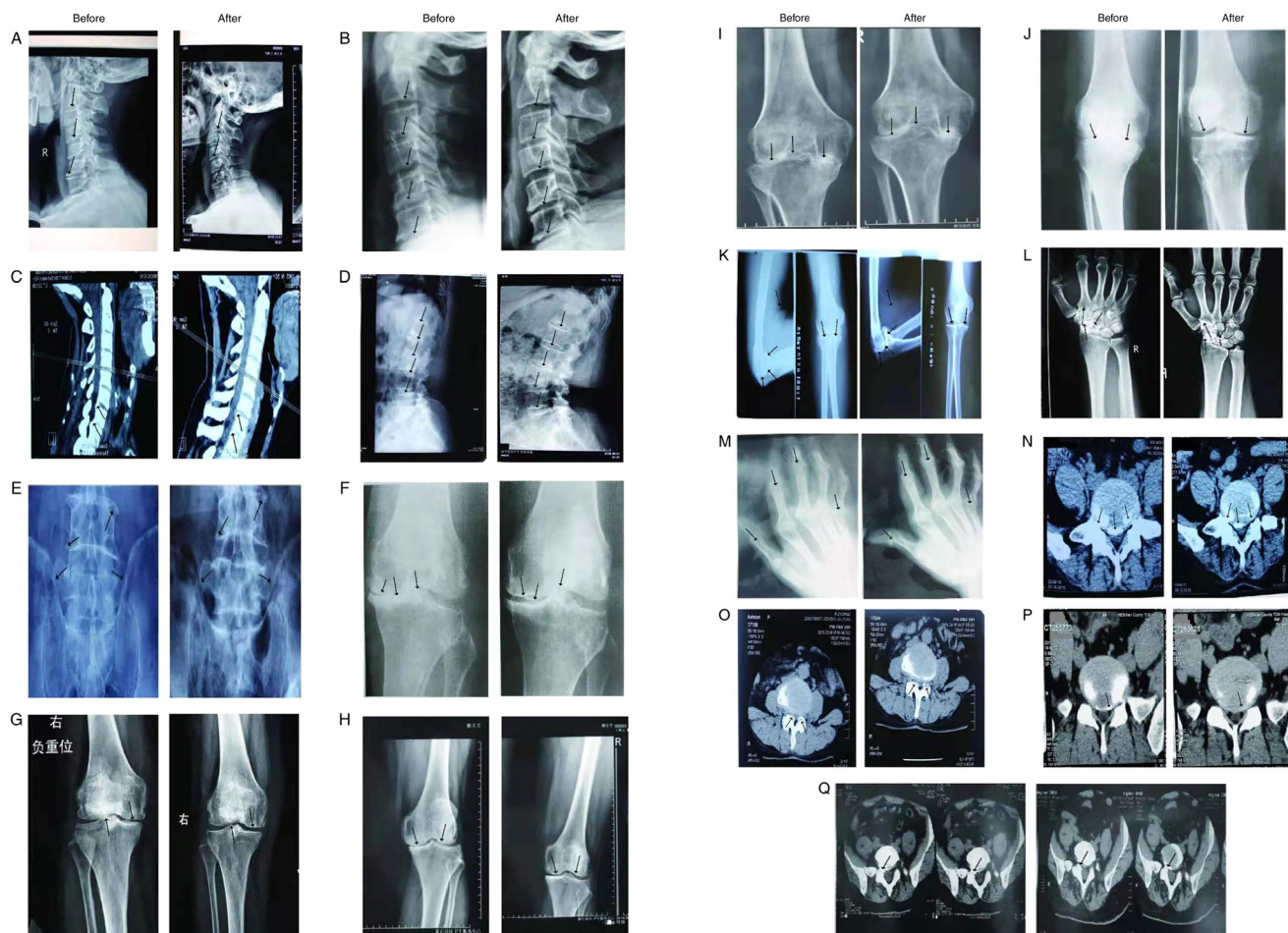


Figure S2. Representative imaging demonstrated the pathological ossification of the joints or ligaments before treatment and the alterations observed after treatment with vitamin D combined with calcium. Abnormal ossification is indicated by arrows. (A) A 42-year-old female patient with OA. X-ray images demonstrated mild hyperplasia at the posterior and upper edge of the C3-C6 vertebral bodies. After medication, the abnormal ossification at the C3-C6 vertebral bodies was aggravated. (B) A 35-year-old male with SA. X-rays showed mild bone hyperplasia at the posterior and upper edge of the C3-C5 vertebral body, which was aggravated after medication. (C) A 45-year-old male patient with OA. X-rays revealed that the L3/L4 space was narrow due to abnormal ossification, which was aggravated after medication. (D) A 61-year-old female patient with OA. X-rays indicated a slight narrowing of the medial space in the knee joints. After medication, the abnormal ossification was aggravated, and the joint space became narrower. (E) A 60-year-old male patient with OA. The joint space of the right elbow was calcified, which was aggravated after medication. (F) A 38-year-old male patient with RA. Abnormal ossification was observed in the ankles. After medication, the joint space became narrower. (G) A 62-year-old male patient with RA. Abnormal ossification of the proximal phalangeal joint was obvious and was aggravated after medication. (H) A 66-year-old male with OA. Lateral X-ray imaging revealed hyperosseous bone in the right ankle, and abnormal ossification worsened after medication. (I) A 48-year-old male patient with SA. Lumbar computed tomography demonstrated left herniation of the L4/L5 disc. After medication, the herniated disc was constricted, but abnormal ossification was visible at the left posterior longitudinal ligament. (J) A 64-year-old female patient with SA. Magnetic resonance imaging demonstrated abnormal ossification of the ligamentum flavum C1-C7 after medication. OA, osteoarthritis; RA, rheumatoid arthritis.

