

## Case Report: Laser Ablation for Synovial Hemangioma Presenting with Knee Pain

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**Introduction** Synovial hemangioma is a rare vascular malformation within the synovial membrane that often leads to chronic joint pain and functional limitations. This case report presents a detailed account of a patient with synovial hemangioma of the knee, highlighting her clinical journey—from initial presentation to diagnosis, treatment, and recovery—following successful laser ablation.

**Methods** The patient is a 51-year-old woman who had been experiencing persistent left knee pain for nine years. Her symptoms worsened with activity and did not respond to conservative management. On examination, she had localized edema, difficulty walking, and reduced range of motion. A contrast-enhanced MRI in 2016 revealed a synovial venous malformation, which was surgically excised at the time, resulting in significant pain relief and restored knee function.

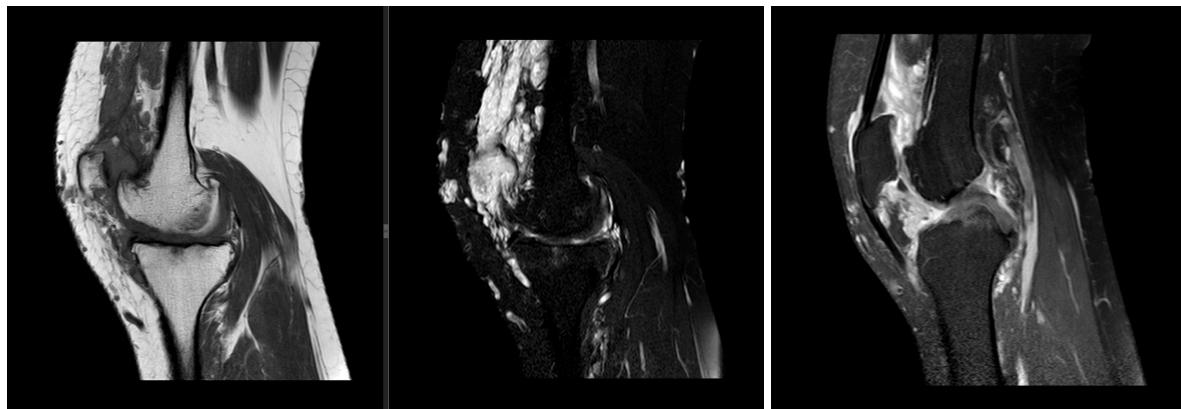
Eight years later, her symptoms returned. A repeat contrast-enhanced MRI in 2024 showed a well-defined, lobulated, enhancing mass deep and superficial to the medial retinaculum, extending superiorly and infiltrating the distal vastus medialis and sartorius. The lesion also involved the anterior and posterior quadriceps tendons and measured  $3.8 \times 6 \times 14.8$  cm. Synovitis and adjacent bone erosions were also noted. These findings confirmed recurrence. She underwent laser ablation of the venous malformation in November 2024.

**Results** Following the recurrence of synovial hemangioma, laser ablation was selected due to its reported advantages, including diminished intraoperative bleeding, accelerated recovery, and reduced scarring. This modality offers significant pain relief, addressing the primary concern of the patient. Cannulation of the lesion revealed serosanguineous output and a slippery texture, attributed to proteinaceous material and fibrin degradation products from chronic bleeding and partial coagulation. Post-procedure, the patient showed reduced knee swelling and fewer palpable superficial veins. At one-week follow-up, she reported tolerable pain, improved swelling, better mobility, and was able to resume daily activities with minimal discomfort.

Laser ablation was chosen for its benefits—less intraoperative bleeding, faster recovery, and minimal scarring. The procedure uses a laser probe to deliver focused energy directly to the lesion, offering targeted relief.

**Conclusion** Chronic knee pain and swelling should prompt consideration of synovial hemangioma in the differential diagnosis. Early recognition and timely intervention are key to preventing long-term morbidity. Laser ablation offers a promising option for recurrent cases, with meaningful symptom relief and functional recovery. Long-term

follow-up remains essential to detect recurrence early and guide rehabilitation strategies that preserve joint function and improve quality of life.



**Figure 1.** Well-defined, circumscribed, enhancing lobulated mass measuring 3.8 x 6.0 x 14.8 cm observed in sagittal cut T1 (left), sagittal T2 short TI inversion recovery (center), and contrast-enhanced T1 sagittal cut (right).

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