

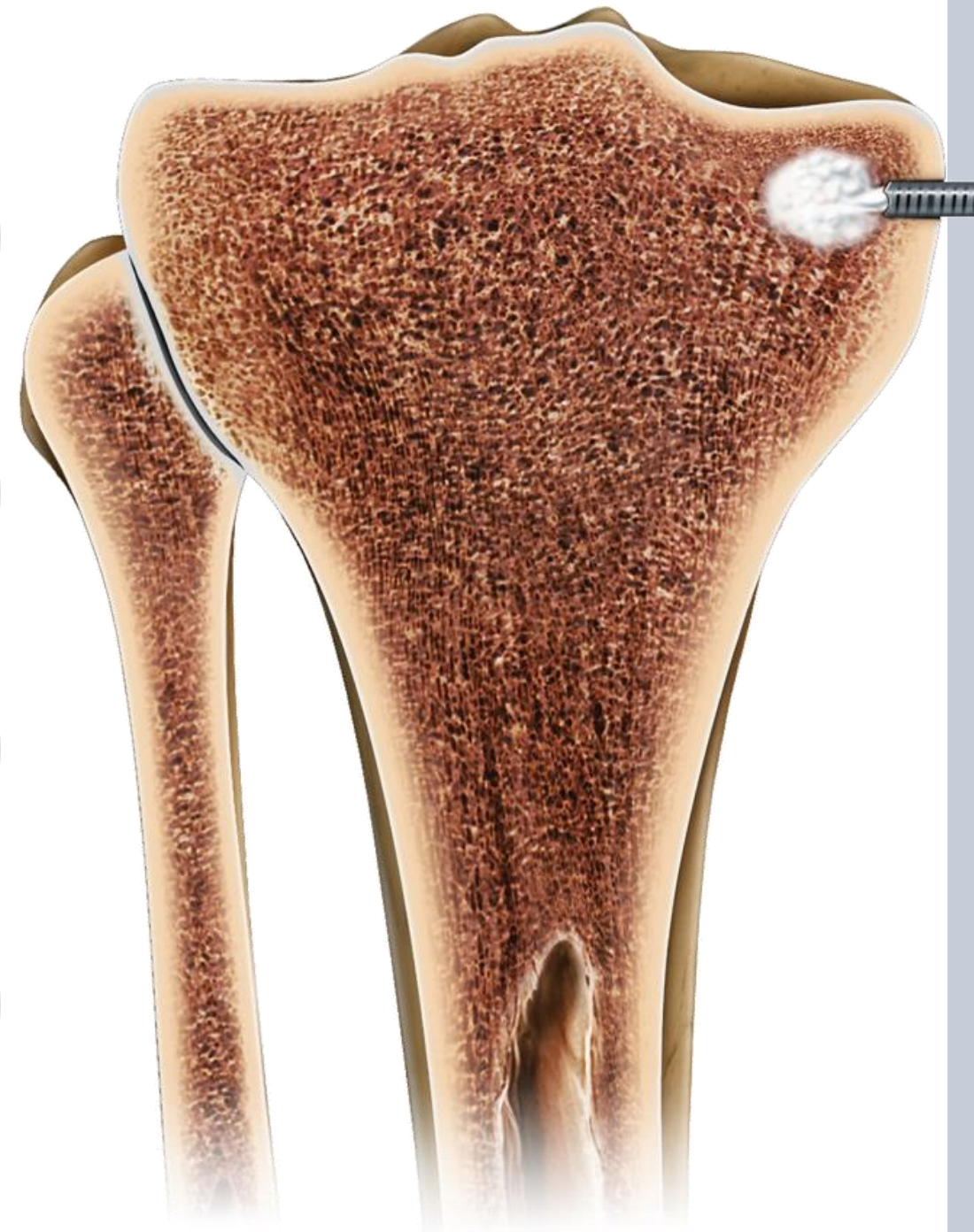
OUTCOMES OF SUBCHONDROPLASTY FOR BONE MARROW LESIONS IN KNEE OSTEOARTHRITIS.

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Disclosure

None

Introduction & Objective

- **Bone marrow lesions (BML)** in osteoarthritis refer to mechanically and histologically altered subchondral bone
- It correlates with **rapid progression of cartilage loss** and increases likelihood of joint replacement surgery
- **Subchondroplasty** refers to injection of **flowable Calcium Phosphate (CaP)** into region of BML
- It stimulates bone remodelling which improves **mechanical property of bone** and prevent **joint deterioration**
- The study is done to assess the effectiveness of subchondroplasty in **reducing pain** and **functional outcomes** of patients with bone marrow lesions performed in a single centre.

Materials and Methods

- Study design:
Retrospective
- Duration:
42 months (1st January 2018 to 30th June 2021)
- Data:
Demographics pattern
Knee X ray findings
MRI findings
VAS and WOMAC scores

Materials and Methods

Inclusion criteria

- Knee pain for at least 3 months
- MRI showed BML located in subchondral bone of femoral condyle and/ or tibial plateau which correlates clinically with knee pain

Exclusion criteria

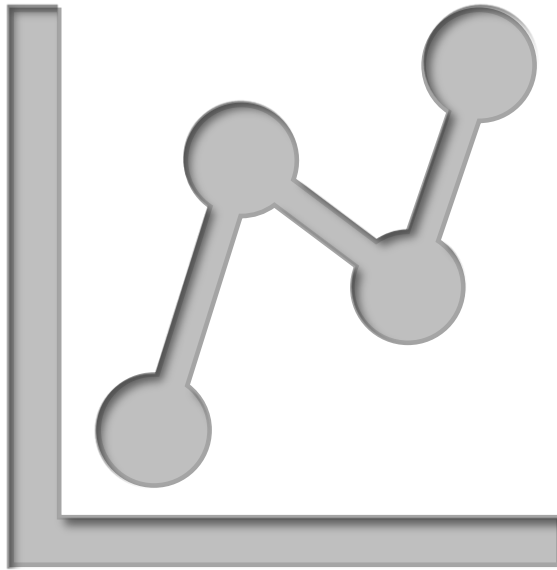
- Osteoarthritis Kellgren-Lawrence grade IV
- Varus/valgus malalignment $>10^\circ$
- Gross knee instability
- History of previous knee surgery

Surgical technique

- All procedures are done in supine position under spinal anaesthesia
- Entry point is mapped under fluoroscopic guidance (anteroposterior and lateral views) based on the location of BML on MRI using a canula
- CaP is mixed and is injected into area of interest under fluoroscopic guidance
- Knee arthroscopy is done to look for any leakage and to treat intra-articular pathology.



Statistical analysis



- Statistical analysis was performed using SPSS version 25
- **Paired Student's *t*-test** was used for analysis
- **P value <0.05** was taken as statistically significant

Results

Number of patients	82
Mean age (range)	53.2 years (41- 64)
Gender (percentage)	
Man	26 (31.7%)
Woman	56 (68.3%)
Mean BMI (range)	27.2 (24- 35)
Mean duration of pain (range)	11 months
Location of BML (percentage)	
Tibial Plateau	48 (55.8%)
Femoral Condyle	22 (25.6%)
Tibial Plateau and Femoral Condyle	16 (19.5%)
Side of knee (percentage)	
Unilateral	78 (95.1%)
Right	35
Left	43
Bilateral	4 (4.9%)
Kellgren- Lawrence (percentage)	
Grade I	16 (18.6%)
Grade II	45 (52.3%)
Grade III	26 (30.2%)

Table 1: Patient demographics and characteristics

Results

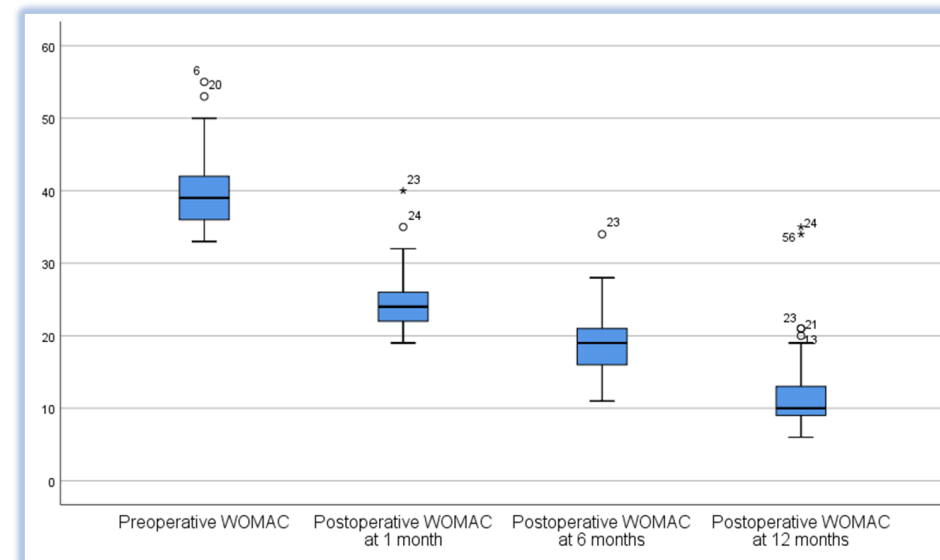
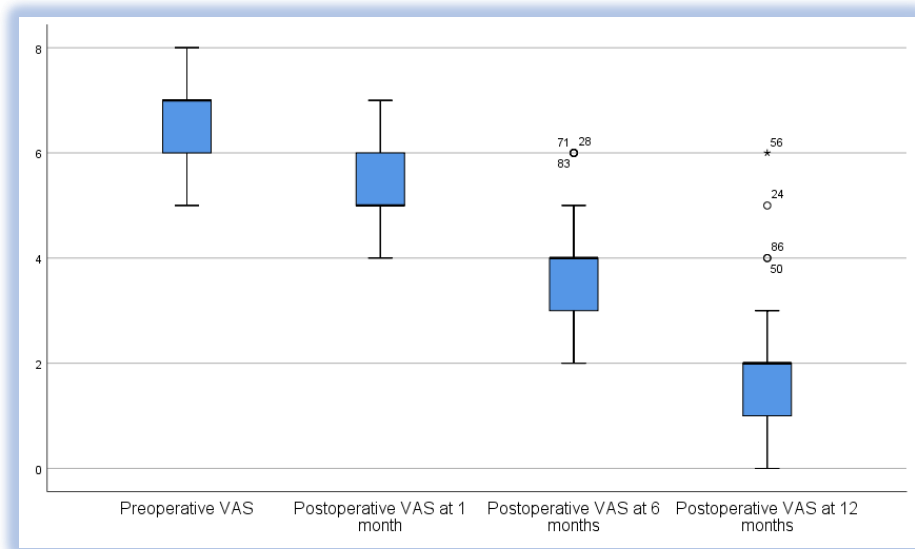


Figure 1 (left) and Figure 2 (right): clinical scores preoperative and postoperative at 1 month, 6 months and 12 months

Results

	Preoperative		Postoperative at 1 month		Postoperative at 6 months		Postoperative at 12 months
Mean VAS Score	6.6 ±0.9	P < 0.001	5.3±0.9	P < 0.05	3.8±1.0	P < 0.001	1.9±1.0
Mean WOMAC Score	40.0±4.6	P < 0.05	24.6±3.9	P < 0.05	19.1±4.2	P < 0.005	11.9±4.9

Table 2: Clinical scores preoperative and postoperative at 1 month, 6 months and 12 months.

Results

CONVERSION TO ARTHROPLASTY

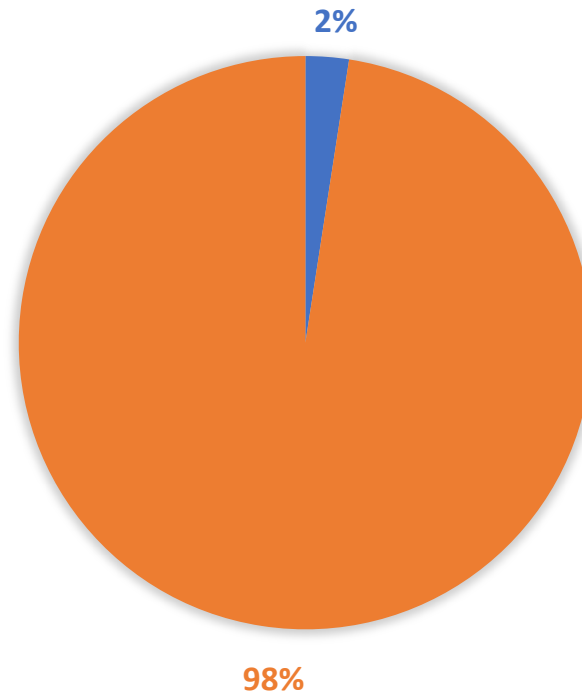


Figure 3: Percentage of patients requiring arthroplasty

Discussion

- Subchondroplasty is **minimally invasive** and relatively safe procedure
- It is an option for patients with Osteoarthritis – Bone Marrow Lesion (OA-BML) that have failed conservative treatment
- It prevents **rapid cartilage deterioration** and **reduces the need for knee replacement**
- **Good patient selection** and **accurate localization** of the BML are the most important factors to produce consistent and favourable results
- Our study showed patients had immediate improvement in **pain score** and **functional capacity**
- Majority of our patients were satisfied with the outcomes and willing to undergo Subchondroplasty again if needed.
- In conclusion, Subchondroplasty is a **joint sparing procedure** which provide **mechanical support** and **prevent rapid cartilage deterioration**, leading to improved **pain score** and **functional outcomes**.

References

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2. Angadi DS, Edwards D, Melton JTK. Calcium phosphate injection of symptomatic bone marrow lesions of the knee: what is the current clinical evidence? Knee Surg Relat Res. 2020 Jan 1;32(1):4.