Oxford City Publishers

Case Reports in Orthopaedic Surgery Journal

Review Article | Vol 5 Iss 3

Donor-Site Selection for Osteochondral Reconstruction of the Capitellum: A Structured Review of the Literature and Illustrative Case

David Alonso Solis-Estrada[1], Ricardo Muñoz-Trevizo[2], Román Samuel Priego-Morales[3], Héctor Armando Espinoza-Guitérrez[1], Carolina Valdez-Velázquez[1], Cristina Alejandra Fuentes-Flores[1] and Edmundo Berumen-Nafarrate[1*]

[1]Facultad de Medicina y Ciencias Biomédicas, Universidad Autónoma de Chihuahua, México

[2]Hospital General de Chihuahua "Dr. Salvador Zubirán Anchondo", México

[3]Benemérita Universidad Autónoma de Puebla, México

[*]**Corresponding author:** Edmundo Berumen-Nafarrate, Facultad de Medicina y Ciencias Biomédicas, Universidad Autónoma de Chihuahua, México. E-mail: edmundo.berumen@gmail.com

Received: October 10, 2026; **Accepted:** November 02, 2026; **Published:** November 15, 2026

Abstract

Background: Osteochondral autograft transfer (OAT) is an established treatment for unstable osteochondral lesions of the humeral capitellum, but the choice of donor site remains unresolved. Conventional donor sites are anatomically distant from the elbow and carry recognised morbidity, which has driven interest in ipsilateral alternatives.

Objective: To review the published evidence on donor-site selection for osteochondral reconstruction of the capitellum, including clinical outcomes, donor-site morbidity, ipsilateral donor options, non-articular autologous bone grafting, and the anatomical constraints of the medial epicondylar region; and to illustrate the resulting principles with a surgical case.

Methods: A structured search of the indexed literature was performed in September 2026, covering clinical outcomes and donor-site morbidity of osteochondral autograft transfer, ipsilateral and extra-articular donor alternatives, and the anatomy of the medial epicondylar region. Findings are synthesised narratively by donor site.

Results: Return to sport after OAT for capitellar osteochondritis dissecans (OCD) is reported in approximately 97% of patients across 24 studies and 470 patients. Donor-site morbidity is 7.8% for knee harvest and 1.6% for costochondral harvest. Two ipsilateral intra-articular donor sites, the non-articulating portion of the radial head and the lateral olecranon tip, have been validated topographically and histologically but not clinically. Non-articular autologous bone from the ipsilateral olecranon has been used successfully in bone peg grafting for early-stage lesions. No published report was identified describing the medial epicondyle as a donor site for capitellar reconstruction.

Conclusion: The evidence supports a hierarchy in which cartilage-bearing donor sites are used to restore the articular surface and non-articular autologous bone is used to restore the subchondral unit. Any extra-articular donor site within the medial elbow must be evaluated against the ulnar nerve, the ulnar collateral ligament origin and the medial epicondylar apophysis, particularly in skeletally immature patients.

Copyright: *All articles published in Case Reports in Orthopaedic Surgery Journal are the property of Oxford City Publishers, and is protected by copyright laws. Copyright © 2026, Oxford City Publishers, All Rights Reserved.*

Keywords: Capitellum; Osteochondritis dissecans; Osteochondral autograft transfer; Donor site; Elbow arthroscopy; Medial epicondyle; Bone peg grafting; Skeletally immature elbow

Introduction

Osteochondral lesions of the humeral capitellum affect adolescents exposed to repetitive radiocapitellar loading and, less frequently, arise as a sequela of previous trauma to the distal humerus. When the lesion is unstable, large, or associated with a loose body, surgical reconstruction is generally indicated, and osteochondral autograft transfer (OAT) is one of the most widely applied techniques [1,2].

The technique itself is well described; the unresolved question is where the graft should come from. Conventional donor sites, the lateral femoral condyle and the costochondral junction, require violating a healthy anatomical region distant from the elbow. This has motivated investigation of donor sites within the affected limb, and more recently of reconstructive strategies that do not transfer articular cartilage at all. The objective of this review is to synthesise the evidence relevant to that decision and to define the anatomical limits that any new donor site on the distal humerus would have to respect.

Methods

Questions addressed

The review was built around four questions: what clinical results and complications are reported after osteochondral reconstruction of the capitellum; what morbidity is attributable to each donor site; which donor sites within the ipsilateral limb have been proposed and with what supporting evidence; and what anatomical constraints govern the medial column of the distal humerus, particularly in the skeletally immature elbow.

Material considered

Systematic reviews and meta-analyses, comparative studies, prospective and retrospective clinical series, cadaveric and imaging-based anatomical studies, and surgical technique descriptions containing original anatomical or outcome data were considered. Editorials were used only as commentary and are identified as such in the text. Animal studies and conference abstracts without an accompanying full text were not used. Publications in English and Spanish were eligible. For the clinical questions, preference was given to studies reporting at least ten patients and twelve months of follow-up; smaller series are cited only where no better evidence exists and are identified by their sample size in the text and tables.

Search strategy

PubMed/MEDLINE was searched in September 2026. The reference lists of the retrieved articles and of previously published systematic reviews were screened, and forward citation tracking was used to identify subsequent work. The strategy for the clinical questions was:

(capitellum[tiab] OR capitellar[tiab] OR "humeral capitellum"[tiab] OR capitulum[tiab]) AND (osteochondritis dissecans[MeSH Terms] OR "osteochondritis dissecans"[tiab] OR "osteochondral lesion*"[tiab] OR "osteochondral defect*"[tiab]) AND ("osteochondral autograft*"[tiab] OR "osteochondral transplantation"[tiab] OR OAT[tiab] OR OATS[tiab] OR mosaicplasty[tiab] OR "bone peg*"[tiab] OR "bone graft*"[tiab] OR allograft*[tiab] OR "donor site"[tiab] OR costochondral[tiab] OR costal[tiab])

The strategy for the anatomical question was:
("medial epicondyle"[tiab] OR "cubital tunnel"[tiab] OR "ulnar collateral ligament"[tiab] OR apophysis[tiab]) AND (anatomy[tiab] OR ossification[tiab] OR "donor site"[tiab] OR harvest*[tiab] OR epicondylectomy[tiab])

Data handling and synthesis

For each source the following were recorded: study design, number of patients and elbows, age and skeletal maturity, donor site, graft number and diameter, duration of follow-up, functional outcome measures, return to sport, donor-site morbidity and complications. Studies were then grouped by donor site and by reconstructive principle, distinguishing cartilage-bearing transfers from non-articular bone grafting. Numerical findings are reproduced as reported by the original authors and are not pooled, because of the heterogeneity of outcome instruments and the predominance of level III and IV evidence; the comparison is therefore qualitative and is summarised in Tables 1 and 2.

What this review is and is not

This is a structured narrative synthesis. No protocol was registered, screening and data extraction were performed by a single reviewer, no formal risk-of-bias instrument was applied, and grey literature was not searched. The review therefore does not meet the requirements of a systematic review as defined by the PRISMA statement, and is not presented as one. The consequences of this for the interpretation of the findings are set out in section 6.

Results

Clinical outcomes of osteochondral autograft transfer

A 2024 systematic review of return to sport after OAT for capitellar OCD identified 24 studies comprising 470 patients; 454 of 470 (97%) returned to sport, with individual study rates ranging from 79% to 100%. Patient-reported outcome scores were generally excellent and range of motion improved consistently, although lateral lesion location was associated with less favourable outcomes and athletes may return at a reduced level of performance or in a different position [3].

An earlier systematic review of osteochondral graft reconstruction options analysed 18 studies and 446 elbows treated with OAT, reporting reliably good outcomes, few complications and a high rate of return to competitive play [4]. Return-to-play data specific to OAT have also been synthesised previously, with knee donor sites producing low donor-site morbidity as measured by Lysholm scores [5].

Donor-site morbidity of distant donor sites

The most precise data on donor-site morbidity come from a systematic review and meta-analysis of studies with at least ten patients and one year of follow-up. In the knee-to-elbow group, morbidity was reported in 10 of 128 patients (7.8%), consisting of knee pain during activity (7.0%) and locking sensations (0.8%). In the rib-to-elbow group, one of 62 cases (1.6%) was complicated, by a pneumothorax. The difference between harvest techniques was not statistically significant. Graft diameter across the included studies ranged from 2.6 to 11 mm, with a median of two grafts per patient [6].

Ipsilateral intra-articular donor sites

Two ipsilateral donor sites have been proposed and characterised: the non-articulating portion of the radial head and the lateral olecranon tip. A topographic analysis using three-dimensional models derived from computed tomography in patients aged 11 to 20 years assessed the subchondral bone match between these sites and simulated capitellar lesions, concluding that both may serve as donor sources [7]. A subsequent histological analysis of cadaveric specimens found a mean difference in cartilage thickness of 0.2 mm between the capitellum and the radial head and 0.4 mm between the capitellum and the olecranon tip [8].

Biomechanical feasibility was addressed in a cadaveric study evaluating the transfer of 6-mm and 8-mm plugs from the peripheral non-articular portion of the radial head to the capitellum, including the load required to produce radial head failure after harvest [9]. These sites were therefore selected precisely because they are cartilage-bearing surfaces resembling the recipient site. This line of investigation has not been universally endorsed; an accompanying editorial questioned whether harvesting autologous plugs from within the affected elbow may create more morbidity than it avoids [10]. To date, no clinical series applying these ipsilateral donor sites has been published.

Costochondral autograft

Costochondral autograft has the longest published follow-up for large capitellar defects. An initial series of 26 patients with full-thickness lesions of 15 mm or more, followed for a mean of 36 months, reported rapid functional improvement and return to previous activities in all patients, with five requiring minor secondary procedures [11]. A later series of 72 patients with a mean age of 14.3 years and a mean follow-up of 57 months confirmed satisfactory longer-term outcomes for advanced lesions involving the lateral wall [12].

Non-articular autologous bone: bone peg and cancellous grafting

A separate reconstructive strategy avoids cartilage transfer entirely and uses autologous bone to restore the subchondral unit while preserving the native cartilage. In bone peg grafting, three to five cortical pegs approximately 20 mm long are harvested from the cortex of the ipsilateral olecranon through a separate 3-cm posterior incision, with explicit intraoperative attention to avoiding the proximal ulnar growth plate and the ulnar nerve [13,14]. In a series of eleven adolescent baseball players, 91% of patients with ICRS OCD grade I or II returned to their preoperative level within twelve months, and magnetic resonance imaging suggested that integration of the grafted site continued for at least 24 months [13].

The indication has been extended to more advanced disease: fragment fixation with bone pegs combined with cancellous bone grafting and refreshing of the sclerotic base achieved bone union in all ten adolescent patients with ICRS OCD stage III lesions involving the lateral wall, with a median age of 13.5 years, improvement in extension and flexion arcs and return to competitive baseball in every case [15]. This body of evidence is directly relevant to any technique that transfers autologous bone from an extra-articular ipsilateral source, since it establishes both the biological plausibility and the precedent for harvesting non-articular bone within the same operative field.

Results are not uniformly excellent. In a separate series of ten adolescent baseball players with grade II lesions treated by bone-peg grafting and followed for a mean of 25 months, the mean extent of lesion healing was 71%: five patients healed completely and returned to competitive sport, five healed only partially, and three of those subsequently required arthroscopic debridement of the unhealed lesion, with one progressing to secondary osteoarthritis [16]. Mean Timmerman-Andrews scores nevertheless improved significantly. These results define the limits of the technique and are relevant to the expectations that should be set for any autologous bone-based reconstruction.

Anatomical constraints of the medial epicondylar region

The medial epicondyle is an apophysis located on the posteromedial aspect of the distal humerus. It is the second ossification centre of the distal humerus to appear, at 5 to 7 years of age, and the last to fuse, between 15 and 20 years. It provides the origin of the flexor-pronator mass and the primary origin of the ulnar collateral ligament, and the ulnar nerve runs immediately posterior to it, in the groove that forms the floor of the cubital tunnel [17].

The quantitative anatomy leaves narrow margins. In a cadaveric study of ten elbows the anterior bundle of the ulnar collateral ligament originated exclusively from the anteroinferior surface of the medial epicondyle, with no attachment to the condyle, and only 20% of the width of the epicondyle in the coronal plane could be removed without violating some part of that origin; the authors observed that an osteotomy plane lying between the sagittal and coronal planes allows more bone to be taken with less violation of the ligament [20]. In 56 cadaveric elbows the centre of the origin lay 2.97 ± 2.21 mm anterior and 4.73 ± 1.60 mm inferior to the apex of the epicondyle and 4.23 ± 1.13 mm deep to it [19]. The functional cost of transgressing this footprint is substantial: sectioning of the anterior band alone produced up to 11.7° of valgus and 11.2° of internal rotatory laxity, and sectioning of the entire anterior bundle up to 14.2° and 18.5° respectively [18].

In the skeletally immature elbow the constraint is tighter still. On magnetic resonance imaging of 90 children with a mean age of 12.8 years, the humeral origin of the ulnar collateral ligament always lay medial to the cartilaginous interface between the medial epicondylar apophysis and the distal humerus, centred approximately 3 mm medial to the lateral edge of the apophysis, irrespective of age or sex [21]. A harvest from this region in a 12-year-old must therefore avoid both an unfused apophysis and a ligament origin whose position relative to that apophysis is predictable but closely confined, while remaining clear of the ulnar nerve posteriorly.

Neurological risk in elbow arthroscopy

The largest available synthesis of complications of elbow arthroscopy included 114 articles, 18,892 arthroscopies and 16,815 patients. Complication rates ranged from 0% to 71% (median 3%; 95% CI 2.8-3.3) and reoperation rates from 0% to 59% (median 2%). Of 906 complications recorded, 735 (81%) were minor and 171 (19%) major, and transient nerve palsy was the single most frequent complication, accounting for 31% of all events. Ten studies reported paediatric populations, with complication rates from 0% to 57% (median 1%) [22].

A contemporary single-institution paediatric series of 191 patients, with a median age of 15.5 years and osteochondritis dissecans as the indication in 60%, reported an overall complication rate of 3.7%, which included one transient ulnar neuropathy; 12% required subsequent surgery and 86% returned to sport [23]. Nerve injury is therefore uncommon but is the dominant mode of harm, and it is concentrated on the medial side of the joint; this is the baseline against which any new medial harvest must be judged.

Evidence gap

No published clinical report, cadaveric study or technique description was identified in which the medial epicondyle, or any other extra-articular region of the distal humerus, was used as a donor site for osteochondral reconstruction of the capitellum. The published ipsilateral alternatives are confined to cartilage-bearing surfaces (radial head, lateral olecranon tip), and the published extra-articular harvests within the elbow are confined to the proximal ulna for bone peg and cancellous grafting.

Table 1: Reconstructive options for capitellar osteochondral lesions.

Strategy	Donor site	Principal evidence	Key figures
OAT	Lateral femoral condyle (knee)	Systematic reviews [3,4,5]	24 studies / 470 patients; 97% return to sport (79-100%). 18 studies / 446 elbows
OAT	Costochondral junction	Clinical series [11,12]	26 patients, lesions >=15 mm, mean follow-up 36 months; 72 patients, mean age 14.3 y, mean follow-up 57 months
OAT	Ipsilateral radial head / lateral olecranon tip	Topographic, histological and cadaveric studies [7,8,9]	Cartilage thickness difference 0.2 mm (radial head) and 0.4 mm (olecranon); 6-mm and 8-mm plugs feasible. No clinical series
Autologous bone grafting	Ipsilateral olecranon cortex (extra-articular)	Clinical series [13,14,15,16]	11 patients ICRS I-II, 91% return within 12 months; 10 patients ICRS III, union in all; 10 patients grade II, mean healing 71%, 3 requiring reoperations
Allograft	Fresh distal humerus / femoral condyle	Technique description [24]	Avoids donor-site morbidity; restores hyaline cartilage and native radius of curvature; limited published outcome data

Table 2: Anatomical and safety considerations of the medial epicondylar region.

Structure	Relevance	Reference
Medial epicondylar apophysis	Appears at 5-7 years; last distal humeral centre to fuse, at 15-20 years; unfused below approximately 15 years	[17]
Ulnar collateral ligament (anterior bundle)	Originates exclusively from the anteroinferior surface of the epicondyle; only 20% of epicondylar width in the coronal plane can be removed without violating the origin; sectioning produces up to 14.2° of valgus laxity	[18,19,20]
Ulnar collateral ligament in children	Humeral origin always medial to the apophysis-humerus cartilaginous interface, centred about 3 mm medial to the lateral edge of the apophysis	[21]
Flexor-pronator mass	Common origin on the medial epicondyle; contributes to dynamic valgus stability	[17]
Ulnar nerve	Runs in the posterior groove of the medial epicondyle within the cubital tunnel; transient nerve palsy is the most frequent complication of elbow arthroscopy (31% of events)	[17,22]

Illustrative case

Clinical presentation and imaging

A 12-year-old boy presented with mild-to-moderate pain in the medial aspect of the right elbow (his dominant limb), predominantly on extension and present for six months. The pain was constant but did not limit daily activities. He did not practice any sport. There was no overt mechanical locking.

On examination there was mild limitation of range of motion, mild tenderness to radiocapitellar palpation and crepitus, without effusion. The ulnar nerve examination was normal, with a negative Tinel's sign, no paraesthesia in the ulnar nerve distribution, and no subluxation with flexion — recorded specifically because of the planned donor site. He had sustained a supracondylar humeral fracture of the same elbow at the age of 8 years, treated with open reduction and percutaneous fixation with Kirschner wires.

Anteroposterior and lateral radiographs showed no angular deformity or acute fracture, but the capitellar contour was irregular. Computed tomography with three-dimensional reconstruction demonstrated an osteochondral lesion of the capitellum measuring approximately 8 mm in diameter (Figures 1A and 1B). Magnetic resonance imaging, the reference standard for assessing lesion stability, was not obtained because of limited availability of the imaging service; instability was therefore established intraoperatively by the presence of a displaced fragment.

Given the antecedent fracture, the lesion was interpreted as a post-traumatic osteochondral lesion rather than a classic osteochondritis dissecans of the throwing athlete, an entity explicitly recognised in the literature reviewed above. Surgery was indicated because of persistent pain associated with an unstable lesion and an intra-articular loose body.

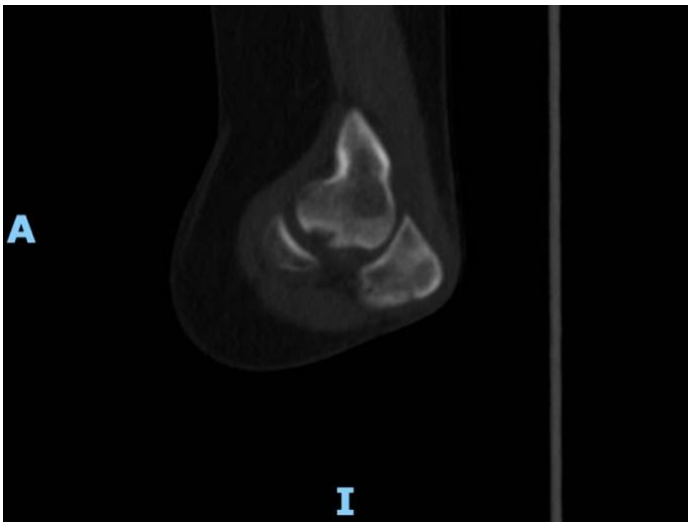


Figure 1A: Osteochondral lesion of the right capitellum on computed tomography.



Figure 1B: Osteochondral lesion on computed tomography with three-dimensional reconstruction.

Surgical technique

The procedure was performed under balanced general anesthesia, with an associated regional block and without tourniquet use. The patient was positioned in the left lateral decubitus position with the right arm supported over a padded arm holder. The anatomical landmarks were outlined before insufflation: olecranon tip, radial head, lateral and medial epicondyles, and the course of the ulnar nerve within the cubital tunnel (Figure 2A). Intraoperative fluoroscopy was used.



Figure 2A: Anatomical landmarks of the elbow, including the course of the ulnar nerve, marked for portal placement.

A direct lateral (soft-spot) portal was established and the joint was distended with saline. Inspection of the radiocapitellar joint confirmed the 8-mm osteochondral lesion of the capitellum with an intact radial head articular surface (Figure 2B). A posterolateral portal was then created to explore the posterior recesses, where a loose osteochondral fragment measuring 2.5 × 4.5 mm was identified and retrieved with arthroscopic forceps (Figure 2C).

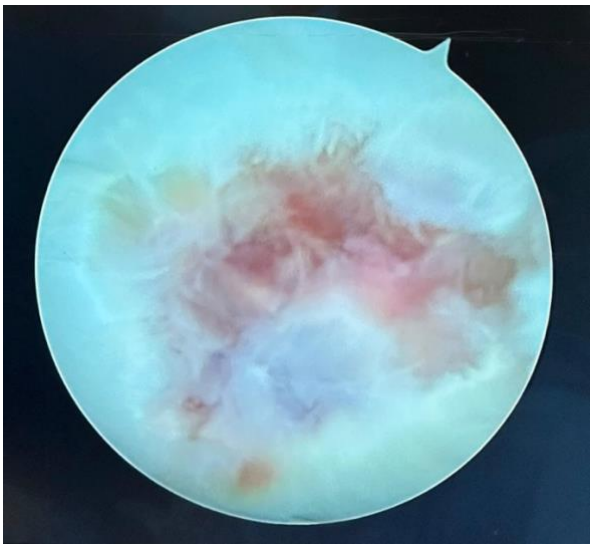


Figure 2B: Osteochondral lesion of the capitellum visualised arthroscopically.



Figure 2C: Loose osteochondral fragment removed from the elbow joint.

The devitalised margins of the lesion were debrided with a shaver and curette until a stable, well-contained bed of 4 mm in diameter and 3 mm in depth with bleeding subchondral bone was obtained (Figure 3A). The donor area on the posterior wall of the medial epicondyle was then approached through a percutaneous accessory portal, consistent with the fully arthroscopic technique. The ulnar nerve was identified and protected, and the harvest window was kept posterior and proximal to the origin of the anterior bundle of the ulnar collateral ligament and to the flexor-pronator origin, and clear of the medial epicondylar apophysis, in accordance with the anatomical limits set out in section 3.6.

An autologous cylinder 8 mm in diameter was harvested using an OATS (osteochondral autograft transfer) instrument system (Figure 3B). As this region was articular, the cylinder consisted of subchondral bone covered by cartilage, as in a conventional osteochondral graft. The donor defect was left unfilled.

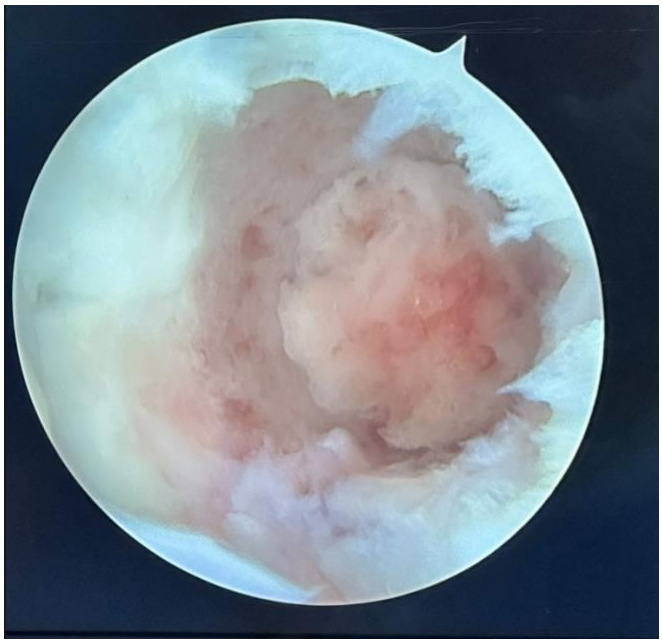


Figure 3A: Prepared capitellar defect with a contained bed and bleeding subchondral bone.



Figure 3B: Percutaneous harvest of the cylinder from the posterior wall of the medial epicondyle.

The cylinder was transferred to the prepared capitellar defect and impacted to obtain press-fit fixation flush with the surrounding cartilage rim. Repeated flexion-extension and pronosupination manoeuvres under arthroscopic visualisation confirmed absence of graft motion and restoration of articular congruity (Figure 4). The portals were closed in the conventional manner and the elbow was immobilised in a shoulder immobilizer for a total of four weeks.

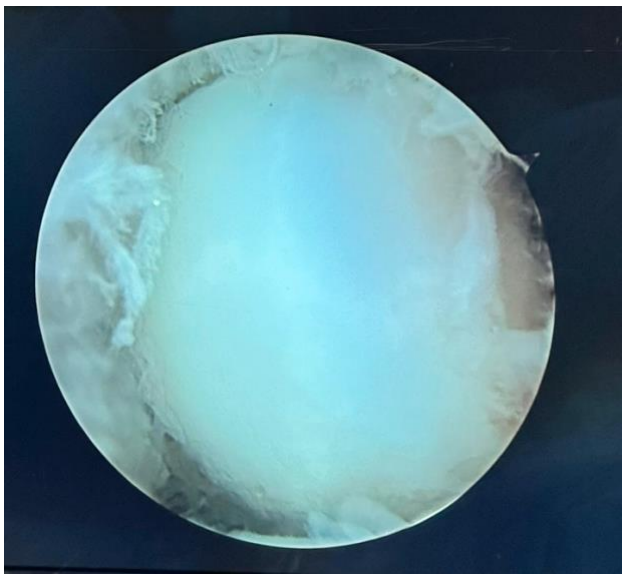


Figure 4: Cylinder seated in the capitellar defect with press-fit fixation, flush with the surrounding cartilage.

Follow-up

The elbow remained immobilised, without early passive mobilisation, during the first four weeks after surgery. One month after surgery the patient began a rehabilitation programme consisting of supervised passive range-of-motion exercises for six weeks. At four months he reported a marked reduction in right elbow pain with full active and passive range of motion. There were no local complications, no signs of valgus instability, no ulnar nerve symptoms or motor deficit, and no donor-site tenderness. Return to sport was not applicable, as the patient did not practice any organised sport.

Relation to the reviewed evidence

This case is presented to illustrate the anatomical and biological questions identified in the review, not as evidence of efficacy. By the classification used in Table 1 it belongs to the osteochondral autograft transfer category, using an ipsilateral cartilage-bearing donor site, rather than to the non-articular autologous bone-grafting group; and the donor region is subject to every constraint listed in Table 2, including an unfused medial epicondylar apophysis at 12 years of age, the adjacent origin of the ulnar collateral ligament and the immediate proximity of the ulnar nerve. It is a single patient with short follow-up and adds no evidence of durability; its value is in defining what would have to be measured in any future evaluation of this donor site.

Discussion

Three conclusions follow from the evidence reviewed. First, OAT for capitellar lesions produces reproducibly good clinical results, and the debate concerns the donor site rather than the procedure. Second, donor-site morbidity is real but quantitatively modest, at 7.8% for the knee and 1.6% for the rib; any alternative donor site must therefore be justified against a low baseline complication rate, and an alternative that introduces a risk of ulnar nerve injury or apophyseal damage would need to demonstrate a clear compensating advantage [6,10].

Third, the literature contains two conceptually distinct approaches that are sometimes conflated. Cartilage-bearing donor sites, whether distant or ipsilateral, aim to restore the articular surface with hyaline cartilage, and the ipsilateral sites studied to date were selected for that reason [7,8]. Non-articular autologous bone, harvested from the ipsilateral olecranon, aims instead to restore the subchondral unit and support the overlying native cartilage [13,15]. A graft taken from an articular region of the distal humerus, as in the case illustrated in section 4, belongs to the first category, not the second, and should be evaluated against the ipsilateral cartilage-bearing donor-site literature rather than against the bone-grafting series.

The absence of any published experience with the medial epicondyle as a donor site means that the safety of such a harvest is entirely unquantified. The anatomical data summarised in Table 2 indicate three specific concerns: proximity to the ulnar nerve, integrity of the ulnar collateral ligament origin, and violation of an unfused apophysis in the skeletally immature patient. The bone peg literature is instructive here, since it addresses the equivalent concerns at the proximal ulna by explicit intraoperative protection of the growth plate and the ulnar nerve [14]. Cadaveric biomechanical work quantifying valgus stability after harvest, comparable to that already performed for the radial head [9], would be the appropriate next step before clinical adoption.

Limitations

Two sets of limitations apply. The first concerns the method of this review: it is a narrative synthesis based on a single search pass performed by one reviewer, without a registered protocol, formal risk-of-bias appraisal or grey-literature search, and restricted to publications in English and Spanish. Relevant studies may therefore have been missed, and the selection of sources is not reproducible in the way a registered systematic review would be. The second concerns the underlying evidence: the clinical literature consists predominantly of level III and IV studies and small case series, no randomised comparison of donor sites exists, and the ipsilateral donor sites have been validated only in cadaveric and imaging models, so no pooled estimate of effect could be generated.

Conclusion

Osteochondral reconstruction of the capitellum yields consistently favourable outcomes, and current evidence supports a distinction between cartilage-bearing donor sites, used to restore the articular surface, and non-articular autologous bone, used to restore the subchondral unit. Ipsilateral cartilage-bearing donor sites remain preclinical, and no extra-articular donor site on the distal humerus has been reported. Any such site, particularly on the medial column, requires anatomical and biomechanical validation with respect to the ulnar nerve, the ulnar collateral ligament and the medial epicondylar apophysis before clinical use can be recommended.

Declarations

Ethical approval: not required for the review component. For the illustrative case, written informed consent for the procedure and for the publication of the clinical images was obtained from the patient's parents, together with the patient's assent; the signed consent form is held separately by the authors and is available to the editor on request.

Conflicts of interest: The authors declare that they have no conflicts of interest.

Funding: This work received no external funding; all costs were met by the investigators themselves.

Data availability: the extraction spreadsheet and the full search strings will be made available as supplementary material.

REFERENCES

1. Kirsch JM, Thomas J, Bedi A, Lawton JN. Current concepts: osteochondritis dissecans of the capitellum and the role of osteochondral autograft transplantation. Hand (N Y). 2016; 11: 396-402.
2. Logli AL, Bernard CD, O'Driscoll SW, et al. Osteochondritis dissecans lesions of the capitellum in overhead athletes: a review of current evidence and proposed treatment algorithm. Curr Rev Musculoskelet Med. 2019; 12: 1-12.
3. Lane G, Smith MV, Goldfarb CA, et al. Outcomes and return to sport after osteochondral autograft transplantation for osteochondritis dissecans of the capitellum: a systematic review. JSES Rev Rep Tech. 2024; 4: 563-570.
4. Logli AL, Leland DP, Bernard CD, et al. Capitellar osteochondritis dissecans lesions of the elbow: a systematic review of osteochondral graft reconstruction options. Arthroscopy. 2020; 36: 1747-1764.
5. Kirsch JM, Thomas JR, Khan M, et al. Return to play after osteochondral autograft transplantation of the capitellum: a systematic review. Arthroscopy. 2017; 33: 1412-1420.

6. Bexkens R, Ogink PT, Doornberg JN, et al. Donor-site morbidity after osteochondral autologous transplantation for osteochondritis dissecans of the capitellum: a systematic review and meta-analysis. Knee Surg Sports Traumatol Arthrosc. 2017; 25: 2237-2246.
7. Bexkens R, van den Bekerom MPJ, Eygendaal D, et al. Topographic analysis of 2 alternative donor sites of the ipsilateral elbow in the treatment of capitellar osteochondritis dissecans. Arthroscopy. 2018; 34: 2087-2093.
8. Bexkens R, Hilgersom NFJ, Britstra R, et al. Histologic analysis of 2 alternative donor sites of the ipsilateral elbow in the treatment of capitellar osteochondritis dissecans. Arthroscopy. 2019; 35: 3025-3032.
9. Adams BG, Tran J, Voinier S, et al. Morrey Award 2023: radial head donor plug for capitellum osteochondral autograft transfer: a cadaveric biomechanical analysis. JSES Int. 2024; 8: 1157-1163.
10. Wetzler MJ. Editorial commentary: is the cure worse than the disease? Harvesting autologous osteochondral transfer plugs for treatment of lesions of the elbow. Arthroscopy. 2018; 34: 2094-2095.
11. Shimada K, Tanaka H, Matsumoto T, et al. Cylindrical costal osteochondral autograft for reconstruction of large defects of the capitellum due to osteochondritis dissecans. J Bone Joint Surg Am. 2012; 94: 992-1002.
12. Sato K, Iwamoto T, Matsumura N, et al. Costal osteochondral autograft for advanced osteochondritis dissecans of the humeral capitellum in adolescent and young adult athletes: clinical outcomes with a mean follow-up of 4.8 years. J Bone Joint Surg Am. 2018; 100: 903-913.
13. Oshiba H, Itsubo T, Ikegami S, et al. Results of bone peg grafting for capitellar osteochondritis dissecans in adolescent baseball players. Am J Sports Med. 2016.
14. Oshiba H, Itsubo T, Ikegami S, et al. Bone peg grafting for capitellar osteochondritis dissecans in adolescent baseball players. JBJS Essent Surg Tech. 2018; 8: e8.
15. Imada H, Mori R, Shibuya H, et al. Lateral wall fixation with bone pegs for advanced osteochondritis dissecans of the humeral capitellum. JSES Int. 2021; 5: 35-41.
16. Maruyama M, Harada M, Satake H, et al. Bone-peg grafting for osteochondritis dissecans of the humeral capitellum. J Orthop Surg (Hong Kong). 2016; 24: 51-56.
17. Pediatric Orthopaedic Society of North America. Humerus medial epicondyle fractures. POSNA study guide. 2026.
18. Floris S, Olsen BS, Dalstra M, et al. The medial collateral ligament of the elbow joint: anatomy and kinematics. J Shoulder Elbow Surg. 1998; 7: 345-351.
19. Saengsirinavin P, Ratanalekha R, Wechasil J, et al. Anatomic study of the medial collateral ligament in Thai population: a cadaveric study of 56 elbows. Indian J Orthop. 2022; 56: 1417-1423.
20. O'Driscoll SW, Jaloszynski R, Morrey BF, et al. Origin of the medial ulnar collateral ligament. J Hand Surg Am. 1992; 17: 164-168.
21. Zell M, Dwek JR, Edmonds EW. Origin of the medial ulnar collateral ligament on the pediatric elbow. J Child Orthop. 2013; 7: 323-328.
22. de Klerk HH, Verweij LPE, Sierevelt IN, et al. Wide range in complication rates following elbow arthroscopy in adult and pediatric patients: a systematic review. Arthroscopy. 2023; 39: 2363-2387.
23. Hilgersom NFJ, Nagel M, The B, et al. Pediatric patients who underwent elbow arthroscopy had an 86% return-to-sport rate, a 12% reoperation rate, and a 3.7% complication rate. Arthrosc Sports Med Rehabil. 2024; 6: 100952.
24. Samuelsen B, Grantham WJ, Goldenberg B, et al. Capitellum osteochondral allograft transplantation for osteochondritis dissecans of the elbow. J Hand Surg Am. 2023; 48: 1165.e1-1165.e6.