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Letter to the Editor

Biological augmentation in arthroscopic rotator cuff repair: A new frontier in shoulder surgery

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Dear Editor,

I wish to bring attention to the growing role of biological augmentation in arthroscopic rotator cuff repair (ARCR), an area of orthopaedic surgery undergoing significant innovation. Despite advances in arthroscopic techniques, healing failures and re-tear rates remain challenges, particularly in large or chronic tears. Recent research suggests that biological enhancement techniques could improve tendon-to-bone healing and functional outcomes.

One of the most studied biological agents is platelet-rich plasma (PRP), which is rich in growth factors that stimulate cellular proliferation and angiogenesis. Meta-analyses indicate that PRP may improve tendon healing and reduce re-tear rates in selected patients undergoing ARCR.[1] Furthermore, bone marrow aspirate concentrate (BMAC) containing mesenchymal stem cells is gaining attention for its regenerative potential in tendon healing.[2]

Another promising tool is the use of bioinductive collagen scaffolds. These patches act as a biologically active matrix, promoting tissue ingrowth and tendon remodeling. A study by Schlegel et al. reported favorable imaging and clinical outcomes using such implants.[3] While the evidence is still evolving, these biologics represent a paradigm shift from purely mechanical repair toward biologically active reconstruction.

However, limitations persist. Variability in preparation protocols, lack of long-term data, and cost-effectiveness analyses pose barriers to routine use. A standardized approach to patient selection and biologic application is essential to ensure optimal outcomes.

As arthroscopy continues to integrate biologic science, we are witnessing a transformation in soft-tissue repair. I urge the orthopaedic community to support multicenter trials and collaborative research to further validate these innovations.

1. Conflict of Interest

None.

References

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