

OrthoAI: A Surgical Copilot. There will be a Personalised Surgical Copilot for every Orthopaedic Surgeon!

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In the rapidly advancing field of orthopedic surgery, the integration of artificial intelligence (AI) is transforming the way we approach patient care. OrthoAI, an innovative AI-based chatbot, is emerging as an invaluable surgical copilot, providing evidence-based information and decision support to enhance surgical precision, efficiency, and patient outcomes. OrthoAI version 1.0 was launched in Dec 2023 as the worlds first AI in Orthopaedics. It was very well received by the community with more than 8000 users registering with us. Over next 6 months many new features were added to OrthoAI, including a specific Surgical Co-pilot module. This module will assist Orthopaedic surgeons in following things.

- Surgical Decision making for individual cases
- Stepwise surgical exposure
- Anticipating difficulties during surgery and preparing for it
- Detailing list of intraoperative complications and providing solutions for same
- Suggestion for Operating room trolleys and what to add to them
- Suggesting any additional instruments, implants or appliances that might be required during surgery to assist the surgeon

One of the primary use cases of OrthoAI is in preoperative planning. For instance, in complex fracture cases, surgeons can

consult OrthoAI to receive recommendations on the latest surgical techniques, fixation methods, and potential complications. This is particularly beneficial in cases like comminuted fractures of the distal femur, where traditional planning can be challenging and time-consuming. OrthoAI also takes information from Videos and lectures on OrthoAI creating a true experience base for the answers. By providing access to the most current medical literature, OrthoTV videos and best practices, OrthoAI helps surgeons make informed decisions based on both evidence and experience. Like mentioned above, it can help in preparing surgical trolleys, ordering additional instruments and implants and helping the OT staff to prepare a surgical checklist.

During surgery, OrthoAI can serve as a real-time informational assistant. For example, if a surgeon encounters an unexpected situation during a total hip replacement, they can query OrthoAI for immediate guidance on best practices, alternative approaches, or potential pitfalls. This real-time support can be crucial in ensuring optimal outcomes and reducing intraoperative stress. This can be specially useful to young surgeons.

Postoperatively, OrthoAI continues to support patient care by offering evidence-based guidelines for recovery and rehabilitation. For patients undergoing ACL reconstruction, OrthoAI can provide detailed rehabilitation protocols, helping to tailor recovery plans to individual needs and prevent complications. This can be used by the rehabilitation expert in

Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2024.v14.i06.4550>

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Submitted: 19/03/2024; Review: 07/04/2024; Accepted: May 2024; Published: June 2024

DOI: <https://doi.org/10.13107/jocr.2024.v14.i06.4550>

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the team to create a customized rehab program for each patient as per pre-operative , intraoperative and post operative condition of the patient. Surgeons can also use OrthoAI to stay updated on the latest research and advancements in postoperative care.

While OrthoAI may not read images or directly observe surgeries, its role as a surgical copilot is nonetheless transformative. By offering timely, evidence-based information and Experience based decision support, OrthoAI augments the surgeon's capabilities, ensuring that patient care is consistent with the highest standards of modern medical practice.

One of the revolutionary ideas which OrthoAI team foresees to happen in next 2 to 3 years is development of individualized personal OrthoAI Co-pilots. Every surgeon will have his own OrthoAI Co-pilot which he will be able to train and add knowledge bank and videos. This OrthoAI Co-pilot will work closely with the surgeon, will understand the nuances, will remember conference talks or conversations for later use. With access to surgical database this copilot would be able to analyse

minute data points and provide insights into personal surgical performance and also suggest ways to improve the outcomes. OrthoAI has an inbuilt Cost-Effective analysis module and can provide insights into to creating more cost-effective processes over time. It will be available on voice command and will be able to talk to the surgeon or even deliver talks for the surgeon to group of his student in his stead. Yes, we are talking absolute futuristic but seeds of these are already incorporated in OrthoAI Coding today.

As we continue to embrace this technological evolution, OrthoAI stands poised to revolutionize orthopedic surgery, making procedures safer, more efficient, and ultimately more successful.

OrthoAI Team is very excited to share these development and we are looking for collaborators. Please write to us on ortho.aigpt@gmail.com for collaboration and comments.

Conflict of Interest: Nil

Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Shyam A, Bijlani N, Sancheti P, Yedurkar A, Lunawat R. OrthoAI: A Surgical Copilot. There will be a Personalised Surgical Copilot for every Orthopaedic Surgeon! Journal of Orthopaedic Case Reports 2024 June;14(6):198-199.