USE OF 3D PRINTING IN SPINE SURGERY - A LOW COST ALTERNATIVE TO ACHIEVE SAFETY AND ACCURACY

DR PRAMOD SUDARSHAN
MS Ortho, Fellow in Spine Surgery (ASSI)
Fellow in Spinal Deformity surgery
(IGASS, Denmark & SICOT, Texas, USA)

CONSULTANT SPINE SURGEON

Aster MIMS HOSPITAL
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GOALS

- SAFETY
- ACCURACY
- EFFICACY
- LIMITED COMPLICATIONS
- EARLY MOBILIZATION

TECHN A

- ROB
- NAVIGATION

- **3D PRINTING**

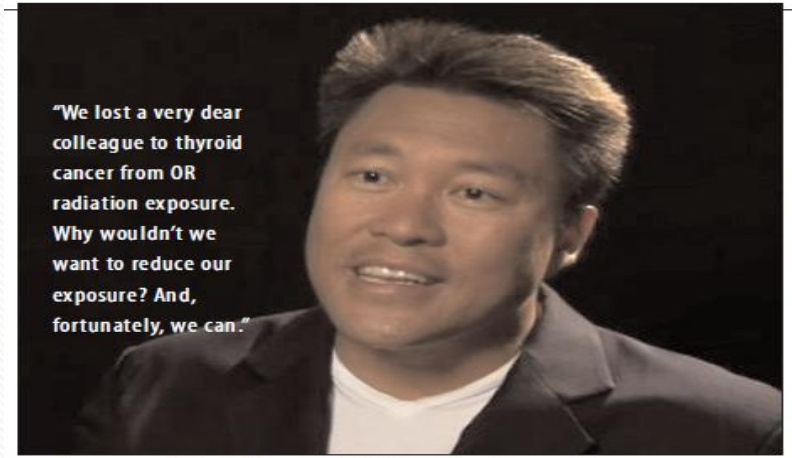
DRAWBACKS

Radiation exposure

Cost/ High capital investments

Spine Surgery & Radiation

Safety First, For Surgeons, OR Staff, and Patients by Ron Trahan



Larry T. Khoo, MD Spine Surgeon

The Spine Clinic of Los Angeles

Spine surgeons double their lifetime radiation exposure limits in less than 10 years.

Radiation exposure in spine surgery is excessive, protection is underutilized, and the long-term biological effects can be deadly. There is a growing concern among influential spine surgeons such as Dr. Larry Khoo, who are calling for the reduction of radiation vulnerability in the OR. It has been reported that a 95%* of physicians grossly underestimate how much radiation both they, and their staff, are absorbing; and, that only 14%* of doctors have undergone training on radiation susceptibility. Nonetheless, there are simple steps that can be adopted, validated under rigorous clinical study protocols, to dramatically reduce radiation exposure in the OR. (* "Glow-in-the-Dark Doc: Radiation Exposure", Orthopedics This Week, volume 5, issue 29, Sept. 22, 2009)

Dr. Larry Khoo completed his bachelor's degree in biological sciences at Stanford University, and then went on to graduate *magna cum laude* from Yale Medical School in New Haven, CT.

Review of Techniques

What should m
acquisition and
for spine surge

Gregory M. Malham, T

Epworth Richmond Hospital, Me

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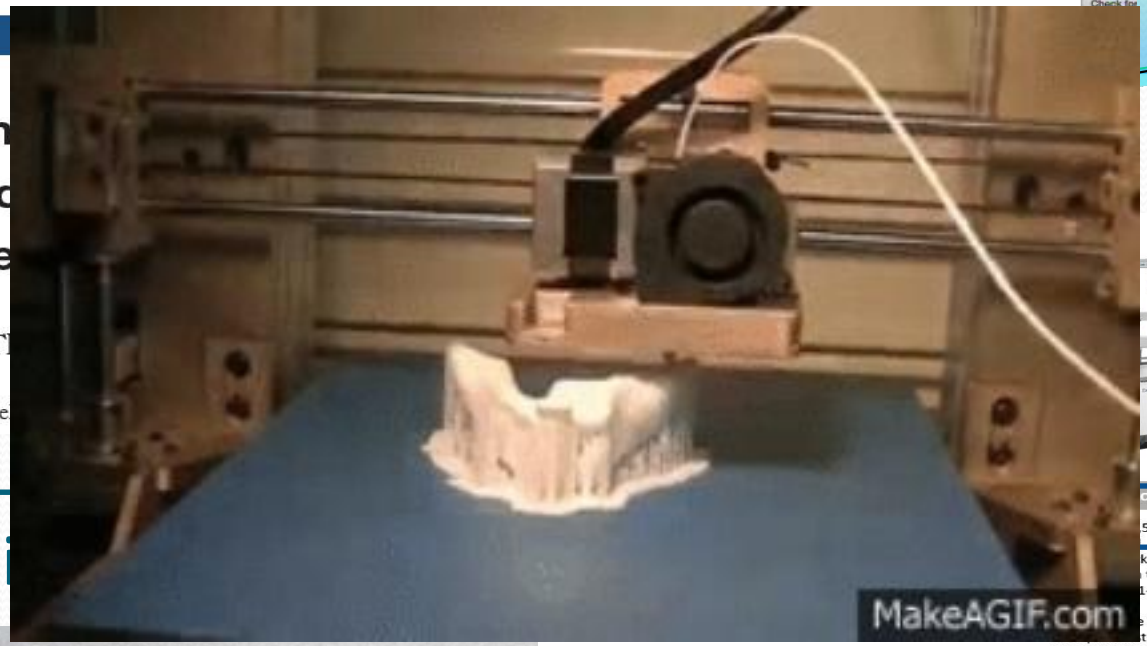

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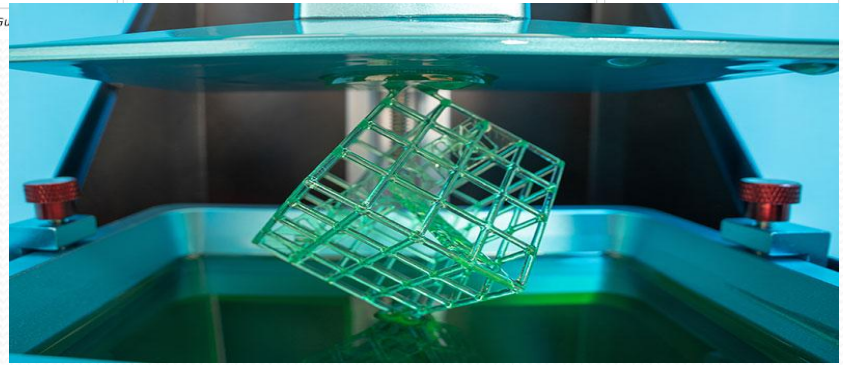
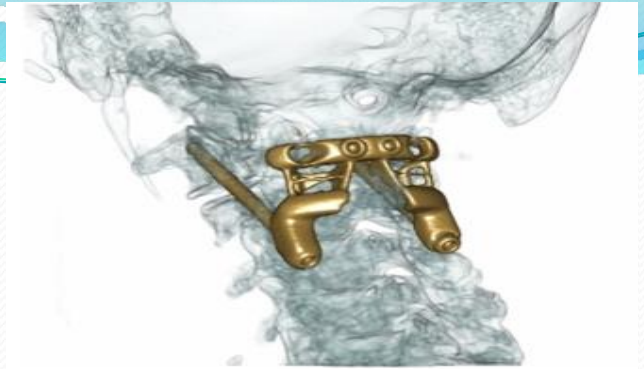
celsius GPS	BrainLab Cirq
500,000	• $100,000-$250,000 • Table-mounted device • Passive retaining arm for BrainLab instrumentation • Requires BrainLab navigation • Open implant platform
k to identify to surgeon 1-pelvis and K-	
e instrument range trument tracking to navigate Globus implants	

Mechanical Gu



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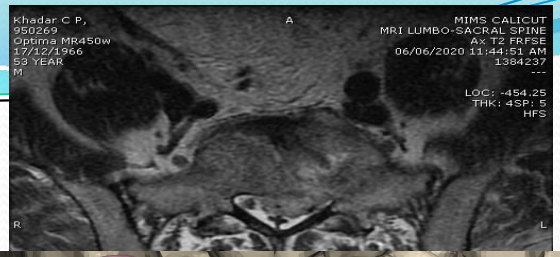
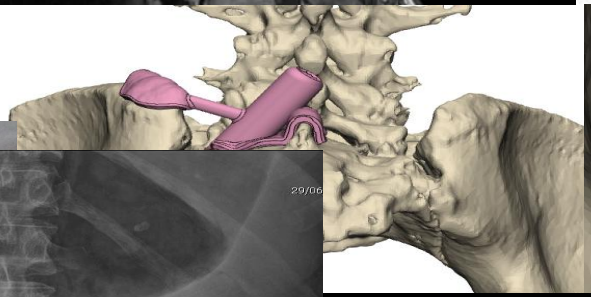
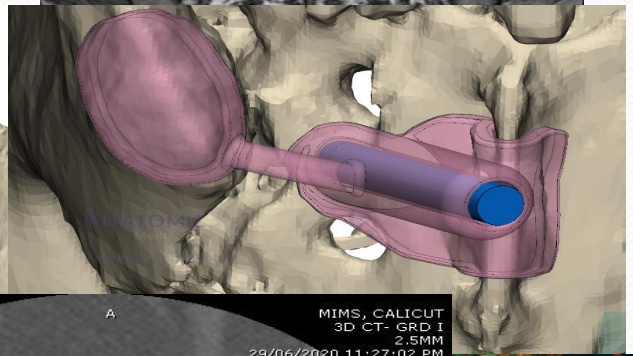
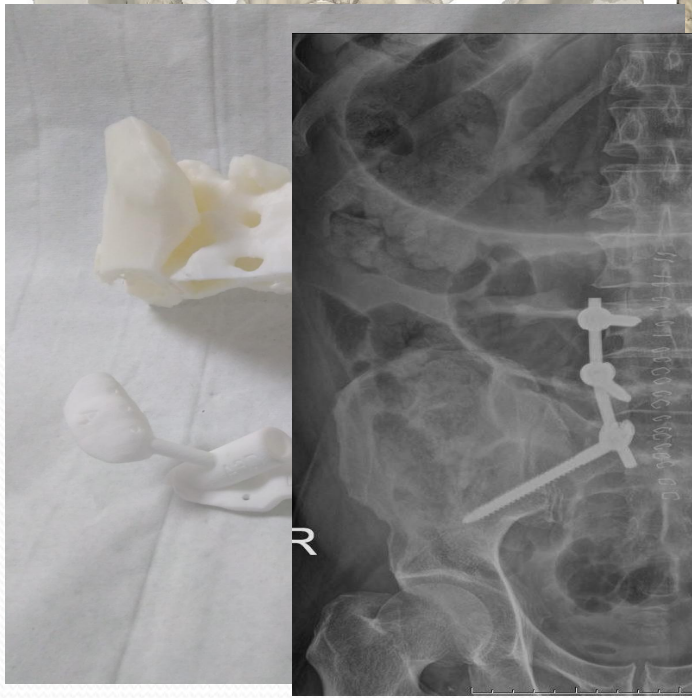
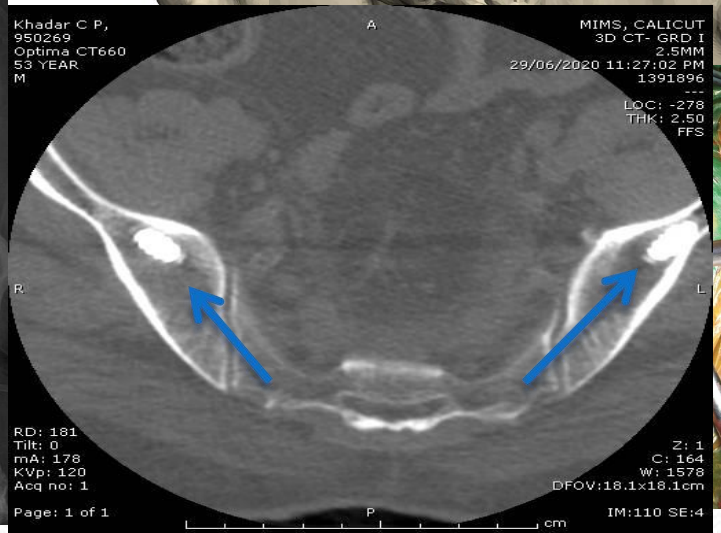


ANATOMIZ3D
Medtech Pvt. Ltd.
Personalising Healthcare









Complex Scoliosis case study

USP's of this technology

Advantages

- **Customized** for the patient. Acts as a **low-cost, accurate and simple** alternative even in complex situations
- **Avoids radiation** exposure and provides **greater accuracy**
- It also **addresses drawbacks** of image-guided navigation systems, including cumbersome stereotactic arrays, high technology startup cost, potential for surgeon interference, and increased surgical time.

Indications

- Though this technique can be used for most spine surgeries, it is particularly helpful in **complex spine surgeries** like
  - Revision spine surgeries
  - Deformity correction surgery (Scoliosis and kyphosis) in children and adults
  - Complex surgeries involving osteotomies
  - Use of Pedicle screws in the cervical spine and spinopelvic fixations

Thank you!

Technolog
replace th

ASTER DM HEALTHCARE

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by pushing the boundaries in complex cases