

## Introduction

Our first generation intraoperative CT (iCT: Toshiba X vision) had been installed since 1997 in a preexisting operating room. Several problems were found out through more than 1000 cases.

## Methods

Second iCT (Somaton Definition AS Sliding gantry Open 64 Air, Simens, Co.Ltd) and equipment were replaced and been used since 2014. New equipment was as follows, synthetic resin radiolucent head clamp (DORO) contained gel type spring not metal spring that showed no artifact. However, head titanium pins have still radiological artifacts, so that we have to think where to set the pins. As to radiological artefact, we developed carbon electrodes and non-metal VEP stimulator.

## Results

The old iCT was used in 1077 cases: 609 tumor surgery, 90 cerebrovascular disease, 195 cervical disorders, 111 emergency head trauma and 72 other miscellaneous diseases .The diameter of the old gantry was 680 mm. Any type of surgical position were possible to set. However, the park-bench position was available but difficult. The size of new iCT gantry is 780 mm in a diameter. Every image was obtained within 15 minutes and image quality was sufficient for interpretation. Image data was transferred directly from the scanner into the neuronavigation system to update registration during surgery. Hemorrhagic complication was found in 4 cases by iCT. Emergency intervention was achieved during surgery.

## Conclusions

The iCT system is helpful without the need for special surgical instruments. We introduce our new operation room and tactics.

## Learning Objectives

We proposed ideal iCT and equipment.

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