

Tech Reviews

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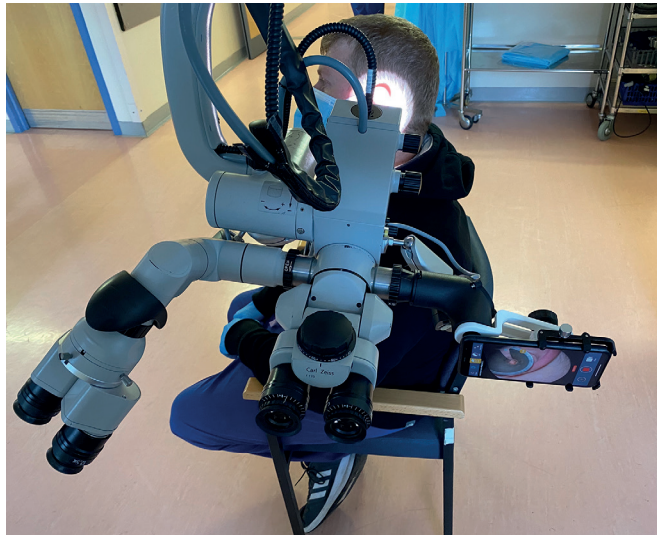
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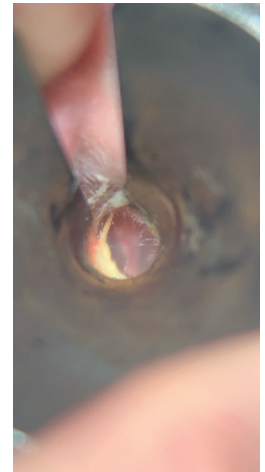
“Videos can be taken at the touch of a button, with or without sound, using the fantastic optic in the eyepiece of the MicroREC”

MicroREC Optical System

BY PETER GASKELL



MicroREC device mounted on operating microscope.



View of tympanic membrane captured on the MicroREC of the left ear showing the handle of the malleus.

The MicroREC is a product by Custom Surgical, a German medtech company, and works as an attachment for an operating microscope to enable procedures to be viewed and recorded on a smartphone. It's advertised as a device used in ENT, dental and ophthalmic practice particularly, but not solely, for use in developing countries with less financial resources to spend on health (customsurgical.co/about). Custom Surgical's aim is to provide cost-effective devices to surgeons and deliver the ability to broadcast their work to receive real-time advice from other surgeons from around the world. The device certainly does achieve this!

The MicroREC costs just under £1000 in the UK and comes in three parts: the microscope adapter which connects to the beam splitter of the microscope, a phone holder and a universal tube which connects them both together and contains a built-in eyepiece on which the phone sits. (www.optimed.co.uk/home/microrec-clicknfit). If your microscope does not have a beam splitter, one can be purchased separately from Custom Surgical for £750. The parts come in a robust carry case to keep everything safe and secure.

My kit came with two phone cases: one specifically designed for my phone and another universal adapter. Both cases work well, however the view is optimised with the

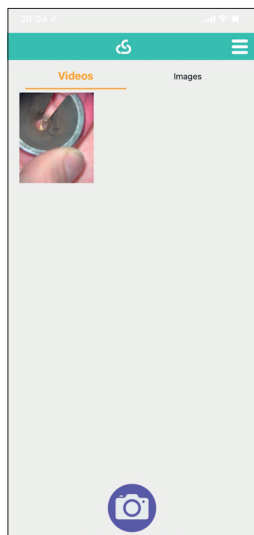
specifically designed case for your phone. The MicroREC is slightly fiddly to screw together until you get the hang of it. Attaching it to your microscope is straightforward, however, and instructional videos can be found online showing how to do this (www.youtube.com/watch?v=vNvsgYZyvro).

Once connected, the MicroREC for Medical Imagery app can be downloaded from the Apple App Store or from Google Play and is very quick and easy to navigate and set up. Videos can be taken at the touch of a button, with or without sound, using the fantastic optic in the eyepiece of the MicroREC and the incredible quality of modern smartphone cameras to capture great images in up to 8K. These are stored on the app away from your personal images. The app is very user friendly; the videos can be skipped through and downloaded onto the phone or shared effortlessly from the app as you would for any picture or video stored on your phone.

I can see the huge benefits of this in countries with limited health resources to facilitate discussion of difficult cases and teaching others locally how to use a microscope. This device could, in the longer term, also facilitate telemedicine in remote areas where ENT expertise are less available by capturing images and sending them to a regional or national expert. The cost is relatively high at the individual level but relatively inexpensive compared to most medical equipment.

There are benefits in health resource-richer countries too. As I found when trialling this device, many clinic rooms don't have a screen to display images for teaching and, if they do, often the image quality is much poorer than can be seen with the MicroREC and a modern smartphone. Additionally, some microscopes don't have a beam splitter so another person cannot watch what is happening. These microscopes can be adapted with a beam splitter and MicroREC to allow others to watch. Patients are often curious about their health, and using this device may help to explain diagnoses and surgeries to patients to help aid understanding, create shared decision making and alleviate anxiety. This device could also help provide telemedicine in health resource-rich countries to provide quicker, expert opinions and reduce the burden on in-demand clinic appointments.

There are some drawbacks to this device, namely that different attachments must



Screenshot of the MicroREC app showing existing saved videos. Clicking the camera button immediately starts recording video.

be purchased depending on the microscope brand used, which can mean several may need to be bought to cover all the microscopes used in a hospital. An additional feature for the app to be accepted within the NHS in the UK would be the introduction of added security at the point of viewing recorded videos to help ensure patient confidentiality and integration with existing hospital software.

There appears to be very little direct competition, however its uptake in the developed world may be limited by the existing incorporation of viewing screens for many surgical microscopes, particularly those used in theatre.

Overall, this product has a place in both the inpatient and outpatient setting of an ENT department in both developing and developed healthcare settings to enhance learning, decision making and provide access to ear, nose and throat specialists.

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