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Taking Digital Microphotography and Videos through a Microscope without any Special Lens

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Introduction: Photography through a microscope is virtually identical to that used with an astronomical telescope. For years, the 35mm camera was the choice for microphotography, but we live in a digital camera age now. We describe a custom homemade adapter that can be fit most of the cameras and microscopes.

Purpose: To design and develop an inexpensive and simple but effective system to assist any person interested in taking digital microphotography or record videos through one of the eyepiece of the microscope.

Method: We used Polyvinyl Chloride (PVC) Pipe obtained from the hardware store to make our homemade microscope adapter. It is ideal to use black PVC to ward off reflections that destroy image contrast. The camera is mounted on a microscope eyepiece using the adapter system. The adapter aligns and rigidly fixes the camera to the microscope. Once the camera is mounted and the lens is adjusted (focused) to provide a clear view of the entire field, final focus is achieved using the microscope knobs and not the camera focusing mechanism. The point is to use the macro mode, a feature nearly all camera have these days.

Results: The adapter is daily used in our Microsurgery course to take digital photos. The photos are used to evaluate the progress of the trainee during the 40 hours microsurgery course. The adapter has had great acceptance from our students, residents and surgeons since this digital photos and videos can be used for publication and presentations.

Conclusion: Adapting a microscope to a digital camera does not have to be hard or expensive. It is sufficient to get the two lenses (the camera lens and the eye piece lens) as close to alignment as possible, and this can easily be accomplished with a little effort using the PVC pipe.