box can be used for inserting another rod for achieving triangulation and manoeuvring the webcam around simulated cruciate ligaments in the box allowed mimicking movement between compartments of knee.

DISCUSSION

Commercial arthroscopic models have a limited availability and are expensive. Use of webcam has been explored for laparoscopic skills training,[1] but a similar application has not been reflected in arthroscopy. Although the picture definition is not as good, the assembly is inexpensive costing around £10. Moreover, it is extremely simple to make and can be used repetitively with most computers beyond the confines of an operating theatre. Although this can hardly be a substitute for performing arthroscopy on real patients, it can improve triangulation skills and hand-to-eye co-ordination.

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Acetate templating for total hip arthroplasty using PACS

CARL MEYER, AMIT KOTECHA, OWEN RICHARDS, ERIC ISBISTER
Department of Orthopaedic Surgery, New Cross Hospital, Wolverhampton, UK

CORRESPONDENCE TO
Carl Meyer, Department of Orthopaedic Surgery, New Cross Hospital, Wolverhampton WV10 0QP, UK
E: carlamandameyer@aol.com

BACKGROUND

Templating is the method where a surgeon calculates the correct-sized prosthesis from a pre-operative radiograph.[1–3] Digital radiography and PACS (Picture Archiving and Communications System) create images of variable magnification. This has led to expensive software to allow templating. We present a simple method to allow acetate templates to be used on PACS images.

TECHNIQUE

An anteroposterior pelvis X-ray is 20% (± 6%, 2 SDs) magnified as the X-ray plate is separated from the hip by buttock muscles and fat.[4] Acetate templates are, therefore, 20% oversized (e.g. Corail hip). A digital anteroposterior pelvis image is taken by the same method but uses a 'digital' plate. The size of the displayed image depends on the screen size and resolution of the screen. The image can be further magnified or shrunk. This variation in size makes it difficult to template. PACS systems have a calibration tool, displayed as an unmagnified measure. A ruler can be fixed to the screen (we used the plastic ruler packaged with a skin marker). The display is magnified or shrunk until 5 cm on the screen equals 5 cm on the ruler (Fig. 1). The digital image is now 20% oversized and equates to a hard copy X-ray (Fig. 2). To prove this, Figure 3 shows the postoperative film with the chosen template perfectly superimposed, confirming the digital image is 20% oversize.

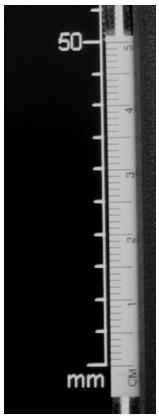

Figure 1 Calibration of image magnification using plastic ruler.

Figure 2 Acetate templates being used on PACS image.

DISCUSSION

With the change to digital radiography, many hospitals no longer print hard-copy films. This method provides an alternative to expensive digital software that is as effective as hard-copy templating.

Figure 3 Confirmation of 20% oversized image.

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A variable angled drill guide for acetabular screw insertion in total hip replacement

SMY AHMED, R AHMAD, A PHADNIS, U BUTT, J MUTIMER, E SMITH

Dept of Orthopaedics, Southmead Hospital, Westbury-on-Trym, UK

CORRESPONDENCE TO

SMY Ahmed, 39 Camborne Road, Horfield, Bristol BS7 0DP, UK

E: shahbazmy@gmail.com

BACKGROUND

Cementless cups are routinely employed in resurfacing and total hip arthroplasty. The acetabular component fixation is by interference fit,

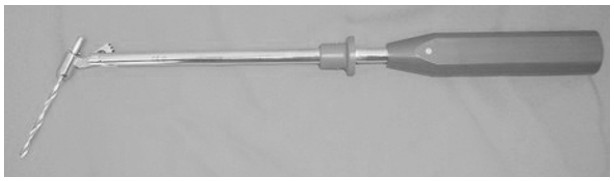

Figure 1 Variable angled guide.

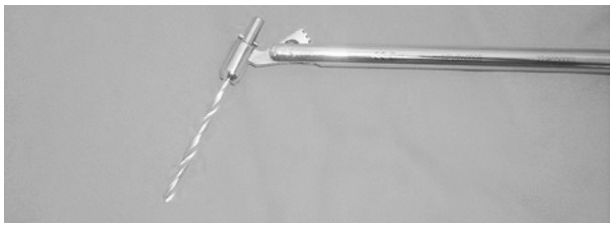

Figure 2 Variable angled guide at 120°.

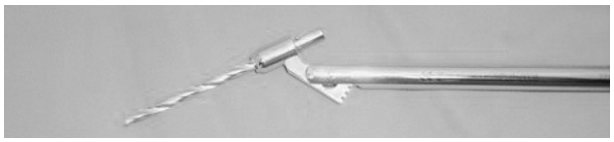

Figure 3 Variable angled guide at 160°.

which can have the option of screw fixation. The use of screws can potentially compromise neurovascular structures around the pelvis.[1,2] The use of the pelvic quadrant system[1,3,4] provides the surgeon with the safe areas for placement of screws. The postero-superior and the postero-inferior quadrants have been shown to be safe and also provide the maximum screw purchase. [1,3,4] Most instrumentation sets employ a fixed angle drill guide for the placement of the acetabular screws. This can make screw placement technically difficult in sockets with reduced access due to small incisions, depth of acetabulum or a relatively closed cup position. If the screw is inserted at an oblique angle, the head of the screw remains prominent and can obstruct the insertion of the liner, damage the polyethylene liner, break the ceramic liner and cause subluxation of the ceramic or metal liner.

TECHNIQUE

We describe a simple variable angled drill guide (Fig. 1), which allows the screw to be placed in a wide range of angles from 120° to 160° (Figs 2 and 3). It consists of a handle with a drill guide. The attachment of the drill guide allows for variable angles to be set by the use of a ratchet (Fig. 1). Thus, the angle of the drill guide can be varied to allow safe and accurate screw insertion.

DISCUSSION

This novel and simple device allows ease of placement of screws and enables the surgeon to utilise the safe quadrants with the maximum bony purchase and accurate seating of the liner within the cup.

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