

Surgical technique: Cemented or cementless implantation with Microplasty instrumentation

Videos

Videos and surgical animations relevant to this chapter can be found at <http://www.oxfordpartialknee.com>.

Preoperative planning

The trays containing the tibial instruments, templates and trial components and those used with all sizes of femur are shown in Figure 7.1. A numbered list of illustrations of all the instruments, trial components and templates can be found at the end of this chapter. When a component or instrument is mentioned first in the following text, its number will be printed with square brackets.

The five sizes of femoral component have different spherical radii of curvature. For each femoral size, there is a matching set of meniscal bearings in seven thicknesses, from 3 mm to 9 mm. There is a separate tray of instruments for each femoral size. The trays, one of which is shown in Figure 7.2, contain colour coded instruments and trial components specifically for use with one size of femoral component. They must not be mixed up so it is safer just to open one size.

In addition to the instruments in the set, it is important to have the thigh support designed for the OUKA and appropriate saw blades. Three saw blades, reciprocating, oscillating and keel cut have been designed specifically for the OUKA and can be obtained in a three pack or individually (Fig 7.3). The reciprocating and oscillating saws have markings to guide the surgeon to the correct depth. The keel cut saw has two parallel blades with some of the teeth bent in. The saw will not only accurately cut the slot but also remove the residual bone between the cuts. Two sets of Microplasty tibial templates are available. Surgeons just wanting to use cemented components should use cemented templates and cemented keel cut saws. Surgeons who want to use cemented or cementless components should use cementless templates and the cementless keel cut saw blade. (Three-blade saws are available but are more difficult to use in hard bone than the two-blade saws.)

The surgical technique is basically the same for cemented or cementless fixation. Where there are differences, these are highlighted.

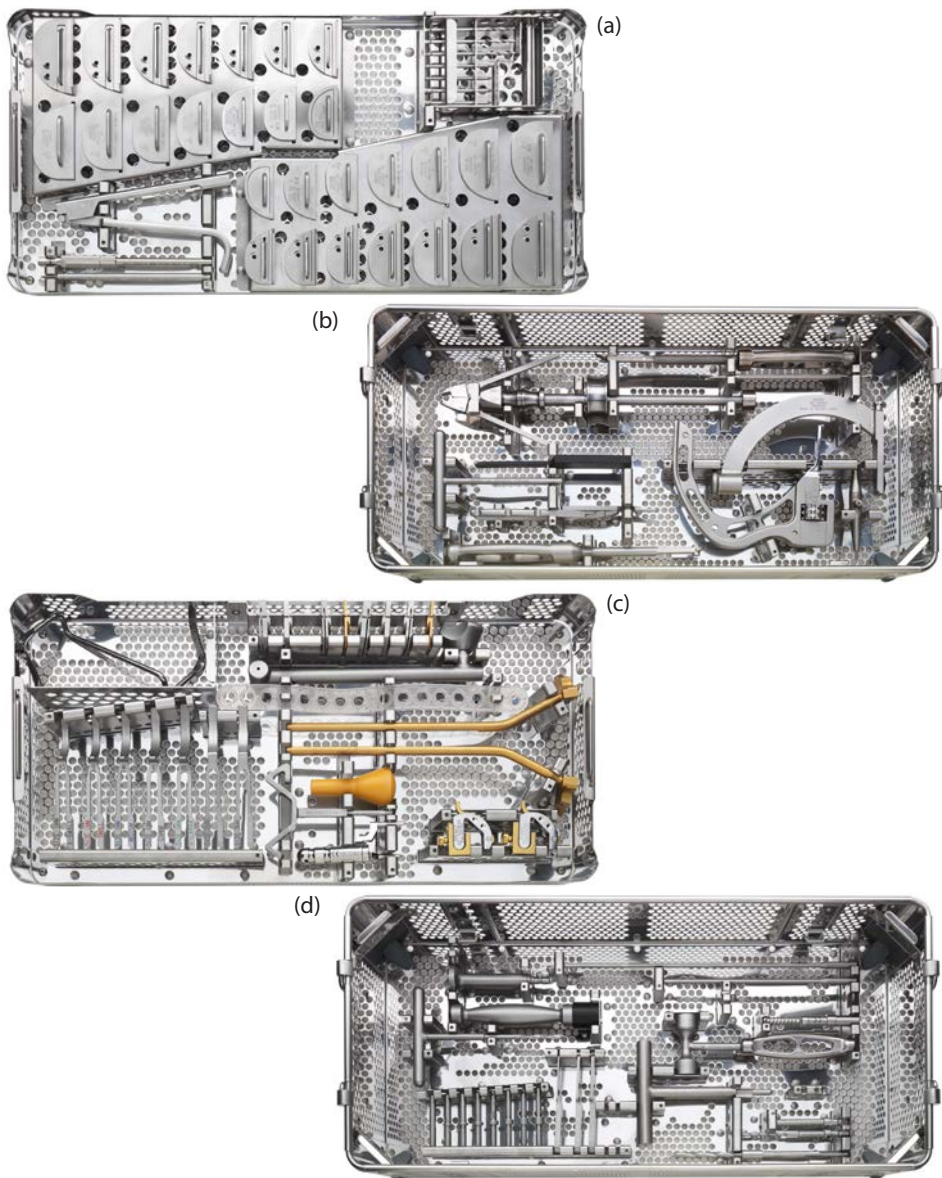


Figure 7.1 (a), (b), (c) Tibial instrument trays and (d) femoral tray used for all femoral sizes.

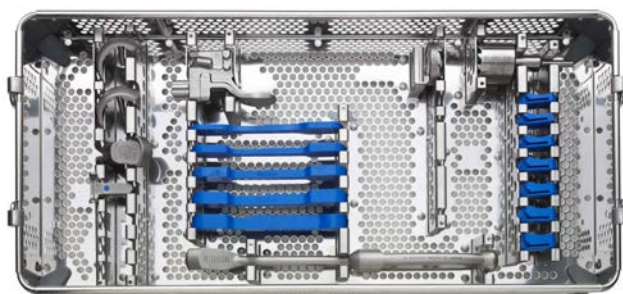


Figure 7.2 Tray for medium femoral components.

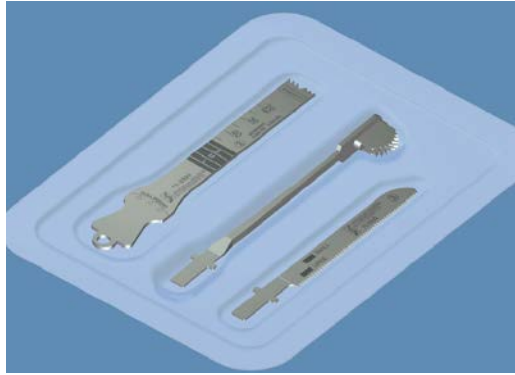


Figure 7.3 The three blade pack.

The size of the femoral component

The size of the femoral component can be estimated pre-operatively from the height and gender of the patient (Table 7.1). During the operation, based in part on the size of the femoral condyle and tibial component, the size may be adjusted. Pre-operative X-ray templating is less and less used.

Table 7.1 A guide to the size of femoral component based on information about height and gender and the size of the tibial component.

Women			Men		
Height	Femur	Matching tibia	Height	Femur	Matching tibia
<60" <153 cm	X-Small	AA, A or B	<63" <160 cm	Small	A, B or C
61–65" 153–165 cm	Small	A, B or C	63–67" 160–170 cm	Medium	C or D
66–69" 165–175 cm	Medium	C or D	67–73" 170–185 cm	Large	E, F
>69" >175 cm	Large	E	> 73" >185 cm	X-Large	F

A medium-size femoral component is appropriate for most patients. (It was, in fact, the only size used in the Phase 1 and 2 implants.) However, in small women, it is better to employ the small size and, in large men, the large size. The extra-large and extra-small sizes are rarely used in Western populations. In Asia the extra-small is used frequently. If there is doubt between small/medium, or large/medium, it is usually safer to use the medium. Similarly, if there is doubt between the extra-small and the small, or between the extra-large and the large, use the small or the large. The size is confirmed by the tibial size: Tibia A & B = usually small femur, Tibia C & D = usually medium femur, Tibia E & F = usually large femur. It is important to remember that all femoral and tibial sizes are fully interchangeable.

Positioning the limb

A thigh tourniquet is applied and the leg is placed on a thigh support with the hip flexed to about 40° and abducted, and the leg hanging freely. When the leg hangs freely, the knee should flex to about 110° . The knee must be free to be flexed to at least 135° (Fig. 7.4). The thigh support must not intrude into the popliteal fossa to ensure that risk of damage to the great vessels is minimised.



Figure 7.4 Positioning the limb on the thigh holder.