Bone Preparation in Cemented Partial Knee Replacement using Pressurized CO$_2$ Gas Jet System

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Aseptic loosening is the most common cause for revision of unicompartamental knee arthroplasty (UKA)$^{1,2}$. This fact highlights the importance of achieving optimum cement fixation via meticulous and effective cleaning and drying of the bone bed. Improved cement penetration and interdigitation into the cancellous bone offers the potential for a reduction in aseptic loosening rates and increased longevity in UKA. Increased cement mantle thickness has also been shown to greatly decrease peak stresses transmitted to the cement interfaces in UKA$^3$. Pressurized CO$_2$ bone preparation utilizing the CarboJet$^\text{TM}$ system has demonstrated improved cement penetration, cement mantle thickness$^4,5$ and bone-cement interface strength$^6$ compared to saline lavage. In particular, the small diameter angled nozzle of the CarboJet system allows effective access for debris removal in tight spaces with less exposure, as during UKA. Excellent cement mantle thickness and consistency, with fewer radiolucent lines, has been observed with the use of CarboJet combined with simple bulb syringe saline lavage in my UKA cases.