INSTRUMENTS

A variety of instruments have been marketed by at least five industries. All of them share the already published principles (1–4):

1. Precise positioning of needle or guide pin under fluoroscopic control in the triangular working zone.
2. Use of a blunt-ended cannulated obturator or soft-tissue dilator over the previously positioned guide pin. The blunt end of the obturator will have a tendency to bypass the traversing or exiting root as it descends toward the triangular working zone.
3. Final positioning of a working cannula that is passed over the previously positioned soft-tissue dilator.

The instruments include the following:

1. An 18-gage needle, 15 cm (6 in.) in length (Fig. 1).
2. A blunt-end cannulated obturator with a 4.9-mm outer diameter (od).
3. Cannulas: A number of cannulas are available and have been used by various surgeons for arthroscopic spinal surgery. The round universal cannula has a 6.4-mm od that provides an inner diameter (id) working area of 5 mm. Recently, a round, bevel-ended cannula has been introduced and utilized by some surgeons (T. Yeung, personal communication).

Two sizes of oval cannulas are available (Fig. 1): a cannula with a 6.4 × 10 mm od that provides a 5 × 8 mm id working area; and a larger oval cannula, primarily used for arthroscopic anterior column stabilization, that provides a 10 × 5 mm id working area (4,5) (available from Stryker, Howmedica, Osteonics, Allendale, NJ).

I and others have used a series of telescoping oval cannulas (Fig. 2) in order to maximize access to the intervertebral disc for the introduction of bone grafts. These cannulas were designed to fit within the dimensions of the triangular working zone. Because the height of the triangular working zone is somewhat limited by the height of the intervertebral disc, oval cannulas will not exert undue traction to the neural structures when it lies within the triangular working zone. A 10- and a 12- mm oval cannular jig permits parallel insertion of both a cannulated obturator and a half- or full-moon auxiliary obturator in preparation of insertion of 10- or 12-mm cannulas (Fig. 3A,B).

4. Triphens: Two sizes of triphens are available that can be used for annular fenestration or cutting and removing osteophytes. Both triphens fit within the lumen of the 5-mm cannula, which was previously described (Fig. 4). Three working scopes are available in 0, 8, and 45°.
20° models. The working channel of these instruments accommodates small-caliber forceps, knives, curettes, a radiofrequency coagulator, and palpating instruments (Fig. 5).

5. Arthroscopes: A variety of 0, 30, and 70° arthroscopes are available for intradiscal and periannular surgery. These scopes may be used with the appropriate irrigation sheaths in conjunction with round or oval-shaped cannulas (Fig. 6).

6. Straight-upbiting and flexible-tipped forceps (Fig. 7).

7. Articulating suction forceps.

8. Deflecting tube that permits 40° dorsal angulation of the flexible-tipped forceps when it is fully inserted into the deflecting tube.


10. Monopolar or bipolar radiofrequency coagulator.

11. Video equipment that is available in most operating room settings.