

## The Mini Vent Technique: A Simple Method to Facilitate Accurate Secondary Portal Placement in Shoulder Arthroscopy

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**Abstract:** Accurate portal placement is crucial in diagnostic and therapeutic shoulder arthroscopy. However, knowledge of anatomy and surgical principles may not be enough. Placement of a second portal is often hindered by a small amount of bleeding. Our technique easily rectifies this frequent problem by using a simple mini-vent. **Key Words:** Shoulder—Arthroscopy—Visualization—Blood—Portals—Turbulence.

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Shoulder arthroscopy is a demanding procedure. Complications from poor surgical techniques are well known.<sup>1</sup> Sound knowledge of surgical anatomy is crucial, and sound knowledge of portal options is also important. The posterior portal is the most commonly used first portal because of its versatility both for simple diagnostic and advanced arthroscopic procedures in the shoulder.<sup>2</sup> A second portal is then chosen depending on the surgical strategy. Placement of the second and subsequent portals is critical to the success of the surgery.<sup>3</sup> Many procedures now require accessory portals in the same tissue plane or surgical window. Our experience has been that even in experienced hands, the first portal inevitably introduces some blood into the joint, which blurs the field of

vision. Previously, this has been dealt with by stopping the inflow and using the irrigation channel on the viewing scope to clear the field of vision. This is not very effective because it uses the same pathway. The process is passive, and several attempts are needed. We describe a simple and much more surgeon-friendly technique, which can expedite this stage of shoulder arthroscopy.

### METHODS

On encountering some bleeding and initial blurring of the field of vision, place a large-bore angiocatheter (20-gauge) or equivalent from any convenient direction. The tip should be directed toward the center of the pool of blood. This allows a small flow of blood-stained fluid away from the surgical field, sufficient to improve vision. A definitive second portal can be accurately planned and placed, either inside-out or outside-in, with the aid of another needle as per usual (Fig 1). The second portal and a cannula can then be used to expedite irrigation in the usual way.

### DISCUSSION

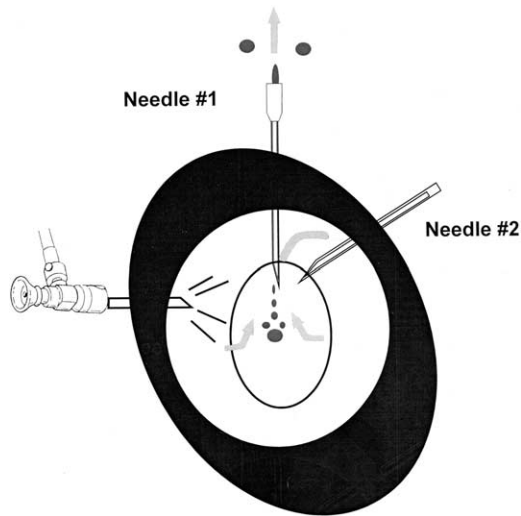
Good visualization minimizes complications<sup>4</sup> in shoulder arthroscopy. In particular, arthroscopy of the

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**FIGURE 1.** Schematic diagram. The posterior portal is used. Needle 1 was used to drain blood droplets and needle 2 was placed below the biceps tendon accurately. Arrows show small flow of blood-stained fluid.

shoulder requires a meticulous surgical field.<sup>5</sup> A thorough knowledge of anatomy is essential but is not the only prerequisite.<sup>6</sup> Direct and indirect methods of controlling the bleeding points are possible.<sup>7</sup> These are applicable during the later stages of the arthroscopic procedure.<sup>8</sup> Different commercial pumps have been compared with regard to relative effectiveness<sup>9</sup> in helping reduce bleeding. The goal of our technique is to facilitate the earlier part of the procedure. It is most effective for the first examination of the glenohumeral joint and guiding the second needle to help place the second portal.

The principle behind our technique may be similar to Bernoulli's effect.<sup>10</sup> Control of the turbulence has been suggested to lead to control of the stirring of the blood and irrigation fluid.<sup>11</sup> By using a narrow-bore needle, we can significantly reduce the velocity and volume of the exiting fluid, minimizing turbulence as if with digital pressure inside a portal.

During initial portal placement, only a small

amount of blood is seen. A major advantage of this technique is that the cannula can be placed within the pool of blood droplets. This allows this small amount of blood to exit the field of view quickly and efficiently, without causing turbulence. Different flow rates of the cannulas have been investigated.<sup>12-14</sup> We suggest trying different sizes to suit the particular setup depending on what is available and the surgeons' preference for pressure setup.

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