The GOLDENBERG SNARECOIL™ Bone Marrow Biopsy Needle

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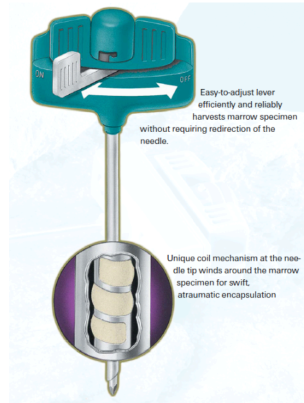
The GOLDENBERG SNARECOIL™* Bone Marrow Biopsy Needles incorporate a unique and patented coil mechanism, eliminating the need to rock or twist to sever and secure the specimen. This revolutionary design helps clinicians to quickly and precisely harvest long, non-fragmented marrow samples. The bone marrow biopsy needles are available as single needles in a variety of sizes. They also come packaged in sterile trays configurations designed to meet individual needs



A tissue biopsy needle maximizes adequate specimen retrieval and minimizes patient pain and tissue disruption. The proposed biopsy needle incorporates an internal snare-coil for capturing specimens. The snare-coil device is described along with needle durability and performance testing. Sharply cut, non-fragmented, cored specimens were retrieved from a resin-based foam. In clinical practice, the snare-coil technology may minimize post-insertion needle manipulations and patient pain. Further studies are required to determine the impact of snare-coil needles on the retrieval of adequate specimens from patients.

The SNARECOIL needle is a specimen capturing bone marrow biopsy needle that incorporates a tiny internal capturing coil. It was developed to minimize postinsertion needle manipulation and to facilitate specimen recovery. Forty-four patients underwent 50 bone marrow biopsy procedures with the SNARECOIL needle for a variety of hematologic indications. Second and third procedures were done for follow-up or staging. Each procedure retrieved a specimen with an average length of 2.1 cm. Fifty-two percent of the specimens were > or =2.0 cm in length. The majority of specimens demonstrated intact marrow architecture enabling a pathologic diagnosis in every case. Delicate cores of non-fragmented marrow were recovered in three cases. The SNARECOIL bone marrow biopsy needle reliably retrieves intact bone marrow core specimens for pathologic interpretation.

Patients undergoing a percutaneous bone biopsy often complain of pain during needle insertion, despite local anesthesia. Bone biopsy needles are typically inserted with combined axial and twisting motions. These motions could cause pain through frictional heating or direct mechanical irritation. The hypothesis of this study is that the insertion energy of bone biopsy needles can be reduced by modifying the insertion kinetics or by adding a friction-lowering coating to the needles. Jamshidi bone biopsy needles were driven into a bone analog model by an MTS materials testing machine operating under axial and rotational displacement control. The load/torque recordings showed that, to significantly decrease insertion energy and peak resistance to needle insertion, axial velocity and angular frequency had to be decreased to one quarter of the baseline, typical-usage parameters. However the increased insertion time may not be acceptable clinically. The majority of the insertion energy was associated with the needle axial thrust rather than with needle twisting. Overcoming friction against the side of the needle consumed much more of the insertion energy than did the process of cutting per se. None of five needle coatings tested succeeded in appreciably lowering the insertion energy, and none achieved a substantial decrease in peak resisting force.

1. Biomedical Instrument Technology 1999 Nov-Dec;33(6):522-9
2. American Journal of Hematology 2001 Nov;68(3):189-93