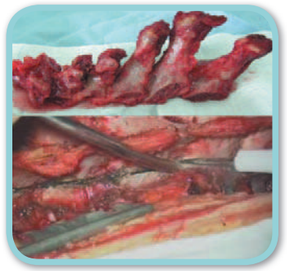
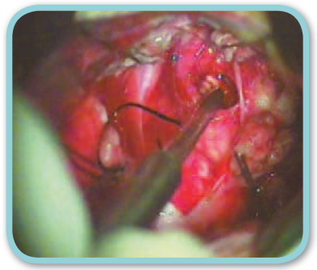
Typical clinical cases

Introduction of combined surgery by using ultrasonic bone cutter and CUSA



Ultrasonic bone cutter: spinal tumor resection

Ultrasonic drill: Anterior arch of atlas odontoid process resection decompression through the pharynx under endoscopic



Meningioma resection

Beijing Sonicmed Technologies Co., Ltd.(former research center of Tsinghua University) is engaged in the research, development and promotion of high-energy ultrasonic surgical equipment. The mission of Sonicmed is committing to medical advances in surgery and focusing on the surgeon needs and their requirements. Sonicmed relies on the technological innovation platform of Tsinghua University, exquisite commitment of our key partners and high-quality business support services. We are now expanding into international markets and provide OEM, innovative R&D, premium quality products with dependable and reliable aftercare service.

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ultrasonic surgical system

Ultrasonic bone cutter and drill & CUSA integrated platform

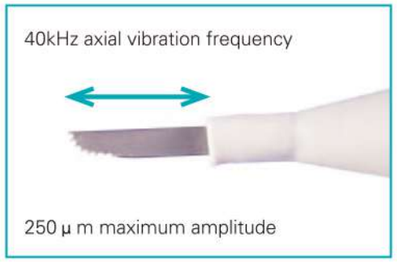
It can be widely used in high-risk surgery: spine surgery, neurosurgery, maxillofacial surgery, ENT, general surgery, etc.

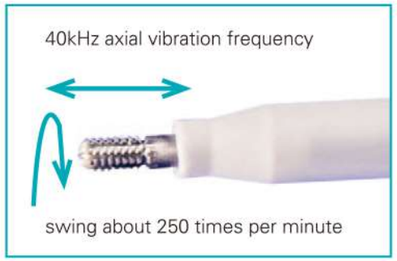
Beijing Sonicmed Technologies Co., Ltd.
China

Ultrasonic bone cutter and drill & CUSA integrated platform

Ultrasonic bone cutter and drill theory

Ultrasonic handpiece can convert electrical energy into mechanical vibrational eenrgy and drive ultrasonic tips to vibrate longitudinally at 40 kHz, and the energy transfer recognizes the type of tissue and responds accordingly through modulating the amount of energy driven into the tissue. When the ultrasonic tip is in contact with the target tissue, it directs a focused amount of energy into it causing the desired effect (such as cutting, sawing, grinding and drilling).





Advantages

• Precision Safety

No high-speed rotation, can be used for fine cutting, grinding, drilling, planning at high-risk surgical position, little risk to nerve bundle and vascular plexus surrounding bone, reducing the risk of surgery.

• Minimal Thermal Damage

Ultrasonic energy will soften the bone tissue when in it is in direct contact with the tip, then breaks it down. It's similar to ultrasonic cutter first breaks the bonds of the tissue protein to loosen and soften it, then denatures the bonds. In a similar way this effect generates little heat and thermal spread. The integrated irrigation system also ensures that the temperature of cutting area is kept to minimal and safe levels.

• Soft Tissue Protection

Ultrasound bone cutter has tissue-selective energy characteristic during operation, it relies on the tip to be in direct and full contacted with the tissue which feeds back the resonance for maximum transmission of ultrasound energy. It takes a few seconds to realize the resonance state before the correct amount energy is delivered to the tissue. During bone cutting when the tip comes in contact with soft tissue, it will begin to create a new resonance state for maximum energy transfer, during this 2-3 seconds it is sufficient for the surgeon to realize the soft tissue has been encountered by the tip. For safety reasons the amplitude of ultrasonic cutter is kept to a minimum and will not cause stretching and scratching of the soft tissue.

• Better Hemostasis

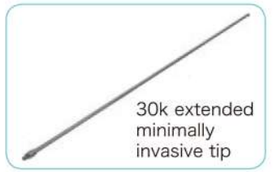
Ultrasonic bone cutter relies on the on the softness and deformation of the bone tissue before it is cut, so the area of blood vessels will be protected by the slip deformation of bone tissue, and thus

CUSA advantages

● Excellent Tissue Selectivity: It can breakdown and perform suction of the tissue(such as tumor) simultaneously while preserving blood vessels and nerves. This helps to avoid accidental injury, shorten operation time, reduce bleeding and potential complications during surgery;

● Different Blade Tips (especially micro and extended titanium alloy tip) including straight and curved handpiece. This can meet the needs of different procedures and in particular suitable for micro, minimally invasive operation.

tips of CUSA



Tip features

1.1mm minimal tip, can meet the requirement of any complex surgery.

Handpiece is very light and suitable for grip for a long time.

CUSA handpiece

ultrasonic bone cutter hand piece and ultrasonic drill hand piece

tips of cutter and drill