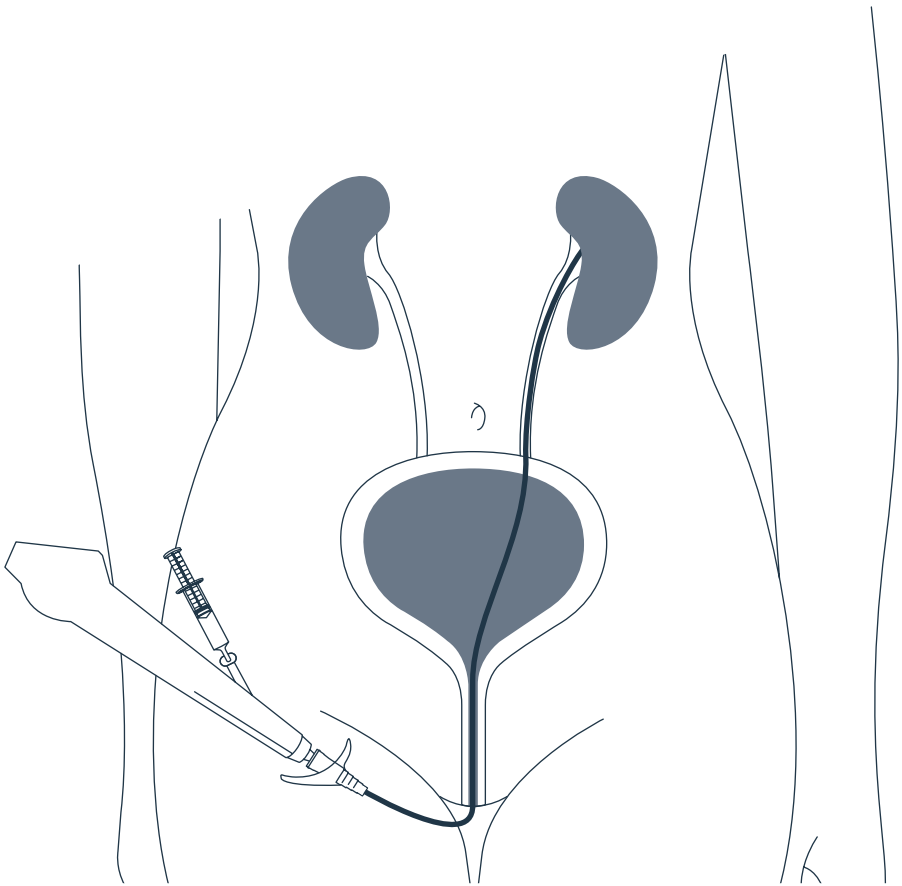


TIPS & TRICKS FROM PRACTICE FOR PRACTICE

Hydrogel method

mediNiK® - hydrogel for the complete removal of kidney stone fragments



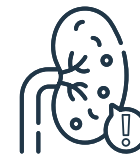
1. TIPS & TRICKS –

Before the procedure



For easy administration of mediNiK®: The pressure point present for technical quality reasons should be released before use by briefly pulling back the syringe plunger.

The use of a **ureteral access sheath (UAS)** is recommended when using mediNiK®.



No contrast medium should remain in the kidney before administration, as this can influence the formation of the hydrogel. Its stability, appearance and/or ability to trap fragments may change as a result.

Before the operation, 2 2-ml NaCl syringes should be prepared to irrigate **the working channel after injecting** components K1 and K2.

2. TIPS & TRICKS –

During the operation

RELOCATION OF THE KIDNEY STONE FRAGMENTS

For optimum results, it is recommended to collect the **kidney stone fragments by irrigating** with sterile physiological saline solution (0.9 % NaCl) **in the upper or middle calyx group**. These can then be removed with the assistance of mediNiK®.

The collection of kidney stone fragments can be effectively assisted by swivelling and tilting the operating table. This also helps to prevent mediNiK® from flowing away from the administration site due to gravity.



To increase the effectiveness of mediNiK®, **fine lithotripsy** with a thin laser fibre (200 or 265 µm) with a *dusting setting* of 0.2 - 0.4 joule and 20 - 25 hertz is recommended. This can be combined with *popcorning* in the calyx.

INJECTION OF mediNiK®

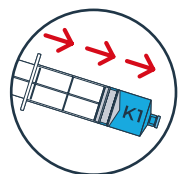
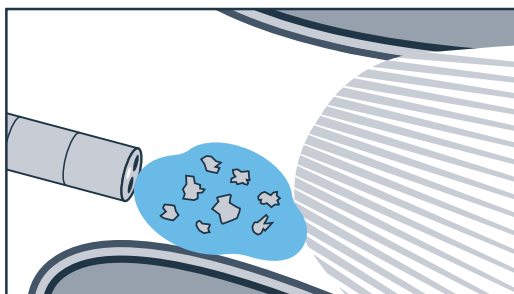


Do not irrigate during the injection of the two components. Thorough irrigation must be carried out beforehand.

The colour contrast clearly shows where **component K1** is applied. All stone fragments must be sufficiently wetted. **This is achieved by slow dosing overlapped with light pulses.** The aim is to encase the fragments in a kind of cloak. Dosing too quickly is counterproductive because the resulting flow can wash the fragments away.

The volume to be injected depends on the patient's individual stone load.

If the stone fragments are distributed over several renal calyces, component K1 should be injected in the same way to all affected renal calyces.



Application of the blue component (K1) of the hydrogel.

For an average number of kidney stone fragments, approximately 1 ml to 2 ml of component K1 per calyx should be sufficient.

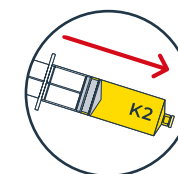
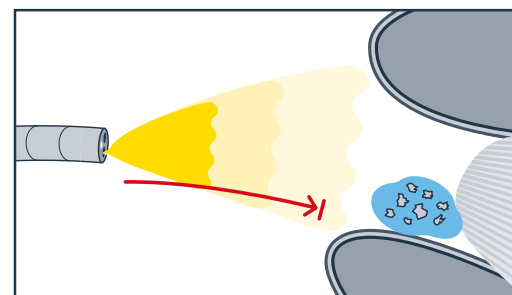


After the injection of K1, the working channel must be irrigated with NaCl by withdrawing the endoscope to the entrance of the calyceal system and rinsing **slowly** with e.g. 2 ml NaCl.



Attention: Complete removal of the endoscope from the ureteral access sheath is not recommended, as gravity and passive irrigation would cause the blue component to drain.

Component K2 (yellow syringe) is injected slowly and continuously close to the blue liquid. Only kidney stone fragments that are surrounded or wetted by component K1 can be enclosed by the hydrogel after the addition of K2 (activator).



Injection of the yellow component (K2) of the hydrogel as an activator.

It is recommended to use the full amount of component K2.

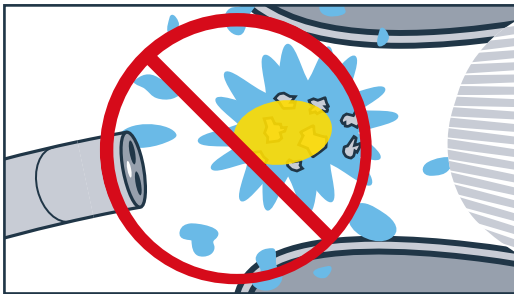


Attention: K2 should not be injected directly into the kidney stone bed.



Injecting component K2 too quickly can cause strong turbulence and result in component K1 being washed away from the collection of kidney stone fragments even before the activator converts it into a hydrogel.

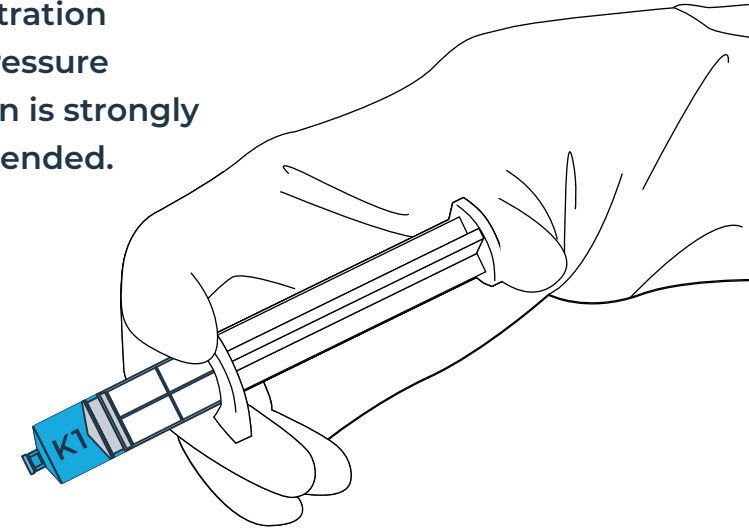
This is often caused by the high pressure required for the blue gel component (K1), and the user tends to mistakenly assume that the same pressure is also required for K2. This usually leads to a strong flow at high pressure and often flushes out K1.



Attention: If component K2 is injected too quickly, component K1 may be washed away.



A practical product demonstration of the pressure sensation is strongly recommended.



GEL FORMATION BEFORE REMOVAL

The gel process starts immediately and is complete after approx. **3 minutes**. The flush can then be reactivated.

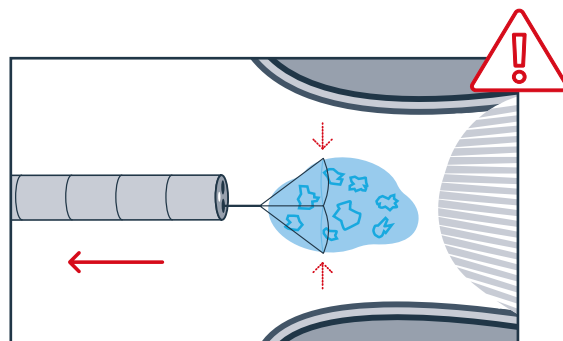


The scales on the syringes are not calibrated and should only be used as a rough guide for the components used. The volume of component K1 to be administered should be determined according to the patient's individual stone load and should always be injected under visual control.

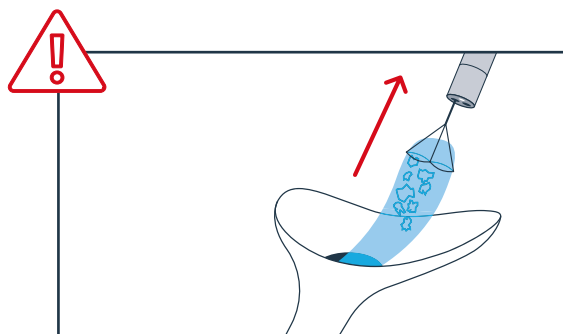
REMOVAL OF THE HYDROGEL

Once the hydrogel *clot* has formed, it can be removed with the aid of a grasping instrument, e.g. a Dormia basket. The hydrogel *clot* is **slowly** withdrawn to the ureteral access sheath and completely removed.

Carefully close the grasping instrument.



Attention: Care must be taken not to close the grasping instrument completely, otherwise the hydrogel *clot* will be cut up.



Careful removal of the hydrogel *clot* with the aid of an endoscopic grasper.

3. TIPS & TRICKS – AFTER THE PROCEDURE

Any hydrogel *clots* remaining in the kidney will be dissolved by **diuresis** if they have not been completely removed.

The administration of diuretics promotes the breakdown of any remaining hydrogel *clots* in the kidney.



For stone analysis, the hydrogel can be dissolved by adding a chelating agent (e.g. EDTA). The individual fragments can be analysed conventionally.

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