

KTP-Laser and fibrin glue for treatment of fistulae in ano

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ABSTRACT

Fistulae-in-ano remains a significant surgical problem due to the limitations pertinent to accurate assessment and the magnitude, shortcomings and side effects of the various procedures currently employed for their management. Six consecutive fistulae-in-ano patients (males, age range 30 to 58 years) were successfully treated by KTP laser (20-watt continuous aim for 20 to 30 seconds delivering a total energy of 400 to 600 joules) with rapid solidification fibrin glue then followed up for 3 months without recurrence. This approach offers a simple, expeditious and effective treatment for fistulae-in-ano thereby overcoming many of the restrictions associated with other methods.

Keywords: Fistulae, laser, fibrin glue, treatment.

Saudi Med J 2001; Vol. 22 (11): 1022-1024

Fistulae-in-ano mostly arise from an infected anal gland, and will not heal spontaneously thereby causing recurrent abscesses and rarely becoming malignant.^{1,3} Difficulties in management occur because of assessment mistakes, overlooking secondary tracts and reluctance to divide large amounts of the external sphincter.^{1,2} Fistulotomy and excision are demanding in terms of post-operative care due to the possibility of causing some form of incontinence¹ and the placement of a seton for high trans-sphincteric and supra-sphincteric fistulae have their obvious limitations.³ We report a simple effective method using KTP laser with fibrin glue for the treatment of fistulae in-ano.

Case Report. Six consecutive male patients (age range: 30-58 years) who presented to Al-Hammadi Hospital in Riyadh between May and October 2000 with complaints of perianal discharges from fistulae-in-ano were treated after they were properly diagnosed (Table 1). A detailed history with full clinical examination preceded fistulography. Patients were offered a 5 day pre-operative oral

course of Metronidazole (500mg tds) and Ciprofloxacin (500mg bid) and were only allowed fluids by mouth the day before surgery. Two phosphate enemata and a rectal washout were carried out before taking the patient to theater. One gram intravenous of Tienam (Imipenam/Cilastatin Sodium, MSD, NJ, USA) was administered at induction of general anesthesia. With the patient in the lithotomy position, the fistula was assessed, its inner opening located by hydrogen peroxide followed by methylen blue then its tract(s) negotiated with a metal probe. A well lubricated ureteric catheter size 6 or 7 F (Rusch AG, Kernen, Germany) was thereafter passed through the fistula tract(s) and delivered outside the anal canal. The stylet was taken out and the KTP laser (Laser Scope KTP/532, USA) fiber passed through the ureteric catheter which was then removed, (Figure 1) and the laser fiber withdrawn to just inside the ano rectal mucosa and a wooden spatula placed over the inner opening. The laser was set at 20 watts continuous aim and goggles were worn. Once the foot pedal activated the laser beam, a steady pull of the fiber towards the external opening was carried out for 20-30 seconds. With

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Received 17th March 2001. Accepted for publication in final form 30th April 2001.

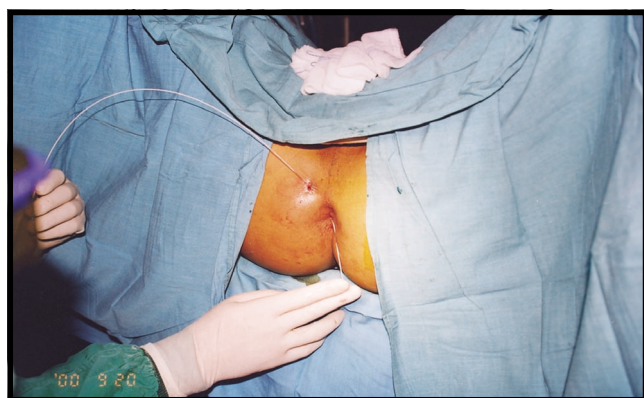
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Table 1 - KTP laser and fibrin glue treatment.

Age (years)	Sex	Discharge Duration	Fistulogram EUA	Laser treatment (seconds)	Post op. pain at defecation	Post op. discharge	Healing (Post op. weeks)
50	M	1 month	Right posterior trans-sphincteric	30	3 weeks	7 days	2 weeks
58	M	1 year	Left anterior trans-sphincteric	28	4 weeks	3 days	2 weeks
35	M	3 months	Right posterior trans-sphincteric with extra-sphincteric extension to rectal ampulla	27	3 weeks	14 days	3 weeks
30	M	6 months	Right extra-sphincteric	20	1 week	7 days	2 weeks
58	M	7 years	Left posterior trans-sphincteric	25	1 week	2 days	2 weeks
39	M	1 year	Right anterior trans-sphincteric	20	1 week	3 days	2 weeks

EUA - Examination under anesthesia; op. - operative

more than just one tract, the same procedure was applied. The total amount of energy delivered ranged from 400 to 600 joules for each case. The inner fistula opening was closed under direct vision using interrupted 2/0 vicryl. Rapid solidification fibrin glue (Tisseel Kit, Immuno AG, Vienna, Austria) was then used to fill the fistula while its inner opening was pressed by the index finger. The glue was injected rapidly to reach all the identified and possibly unidentified tract(s). Once fully awake from anesthesia, patients were allowed food and drink by mouth and started on a 7 day oral regimen of Diclofenac natr. 100mg bid (Voltaren Retard 100, Novartis Pharma AG, Basle, Switzerland), Tramal 50mg tds (Tramadol hydrochloride, Grunenthal GmbH, Aachen, Germany) and Dulcolax 5mg noct

**Figure 1** - KTP Laser fiber inside the fistula.

(Boehringer Pharma KG, Rein, Germany). They were allowed to go home the same day and be followed up at the outpatient clinic after one, 2, 4, 8 and 12 weeks. Healing of the fistula was established when the discharge ceased, none was recovered at anal massage, the external opening had fully closed and no recurrence was noted during the follow up. This healing occurred in all the patients within 3 weeks following treatment. The treatment was well tolerated and all the patients resumed their daily activities following discharge from the hospital. No incontinence of any shape or form occurred in any case. All patients had some degree of post laser pain at defecation lasting from one to 4 weeks, nonetheless no additional medication was needed to control this pain. Similarly a serous discharge from the external opening was noted, however, it rapidly reduced in volume and ceased within 2 weeks.

Discussion. Fistulae-in-ano remain a significant surgical challenge not only because they do not heal spontaneously, but also because available methods of treatment have limitations and can introduce complications.¹⁻³ The laser fibrin glue treatment that has been presented aims to occlude the internal fistula opening, destroy chronic inflammatory tissues lining its tract and preventing healing and then block the main tract along with any secondary tracts which might not have been identified. This was successfully applied in 6 consecutive patients who presented with a variety of fistulae. The implications and gains in terms of avoiding surgery, short hospital

stay, expeditious return to daily activities and health services financial gains are only too obvious. The healings occurred in a heterogeneous group of cases suggesting that the treatment success was method related rather than influenced by any specific patients or fistula characteristics. Current modalities of fistulae-in-ano assessment employ magnetic resonance and anal endosonography.⁴ It appears that the applications of these diagnostic approaches as part of the laser fibrin glue treatment program may enhance its accuracy particularly if the linear anal endosonography probe is used to aid accurate placement of the laser probe into the fistula tract and any secondary tracts. Although the laser fibrin glue treatment caused some pains and discharge, none of the patients were perturbed by this. In fact all the patients were extremely gratified by an expeditious discharge from hospital without any surgical wounds.

Consequently, KTP laser and fibrin glue appear to offer a simple expeditious yet effective method for

the treatment of fistulae-in-ano thereby overcoming many of the limitations associated with surgery and the seton technique. This investigation is only an introduction to a possible new therapeutic modality. Additional studies on larger patient numbers are needed to explore the validity and potential of the laser fibrin glue method.

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