Fistula **La**ser **C**losure (**FiLaC**): an experimental new sphincter-conserving treatment for anal fistula

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Background

- Complex, high and recurrent fistulae-in-ano remain a surgical challenge.
- Fistulotomies and even seton placement are often associated with fecal incontinence.
- Various surgical procedures have shown disappointing results.

Aim of Study

- The Authors describe a new method of "sealing" anal fistulas with a diode laser radial fiber.
- A prospective, pilot, clinical study was undertaken in order to assess the results of this procedure in terms of morbidity, QOL, incidence of postoperative incontinence and resolution of symptoms.

Technique

- With patients in the lithotomy position, the external and internal anal opening of the fistula tract are identified (Injection of methylene blue dye/hydrogen peroxide).
- A disposable laser fiber capable of delivering laser radiant energy at 360° (Diode laser 980nm, *biolitec AG, Jena, Germany*) is introduced in the fistula through a Seldinger maneuver.
- With the tip of the fiber positioned at the internal opening, 10W of laser radiant energy is delivered in a "continuous" mode while slowly pulling the fiber through the fistula tract (approximate speed of extraction: 1 mm/sec).
- Laser radiation causes a shrinkage of the surrounding tissue allowing primary closure of the fistula tract.
- Effective sealing of the fistula is confirmed by intra-operative anal ultrasound (4 cases) or by attempting to inject the methylene blue/Hydrogen Peroxide through the perianal orifice.

Patients

- Patients 10 (5 F, 5 M)
- Age (average/range): 43 (28 -71)
- Diagnosis:
  - Primary Transphincteric Fistulas 3
  - Recurrent Transphincteric Fistulas 3
  - Recurrent Intersphincteric Fistulas 2
  - Recurrent/Previous Seton Placement 1
  - Recurrent/Previous in Crohn's Dis 1

Methods

- Type of hospital admission: 1 day surgery
- Type of Anesthesia:
  - Epidural: 8
  - General: 2
- Antibiotic Short-Term Prophylaxis:
  - Ciprofloxacin: 200 mg
  - Metronidazole: 1 g
- Operative Time (average/range): 12 min (6 - 21)

Conclusions

Fistula **La**ser **C**losure (**FiLaC**):

- sphincter-saving technique
- easy to perform
- repeatable
- satisfactory success rate
- high patients' compliance
- low morbidity rate
- indicated in higher and/or recurrent perianal fistulas or in all cases where local or general conditions of patients contraindicate surgical transection of sphincters.

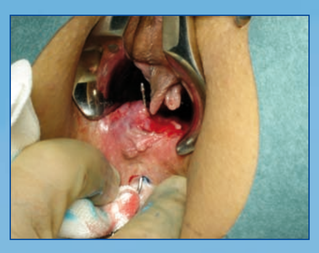


Fig. 1 - Localization of fistula tract.

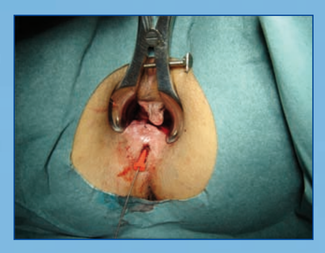


Fig. 2 - Seldinger manouver.

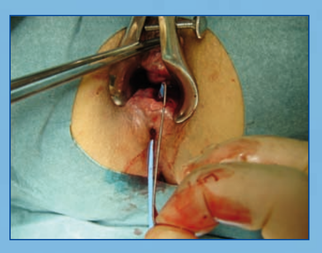


Fig. 3 - Seldinger manouver.

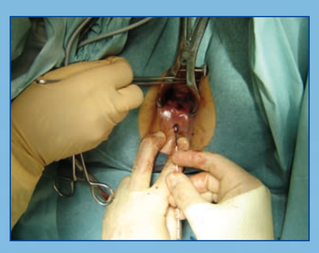
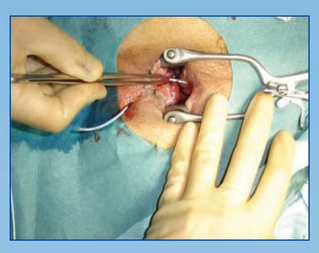


Fig. 4 - Laser energy erogation.

Fig. 5 - Final result.

PATIENT 1



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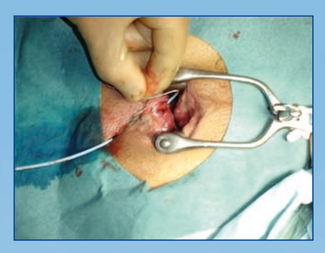

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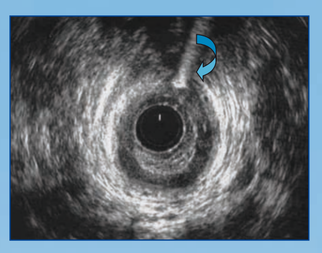


Fig. 3 - Intraoperative anal ultrasound showing the fistula tract with the probe.

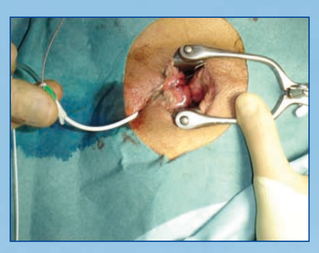


Fig. 4 - Seldinger manouver.

Fig. 5 - Seldinger manouver.

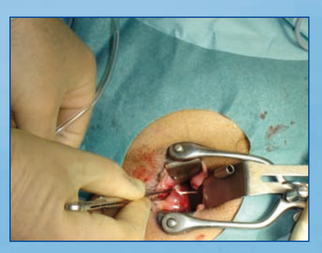


Fig. 6 - Introduction of Laser fiber.

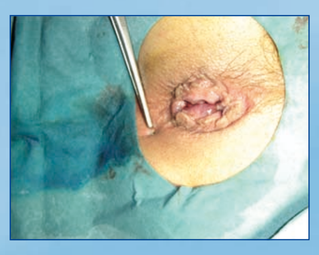


Fig. 7 - Final result.

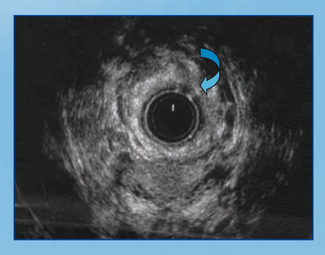


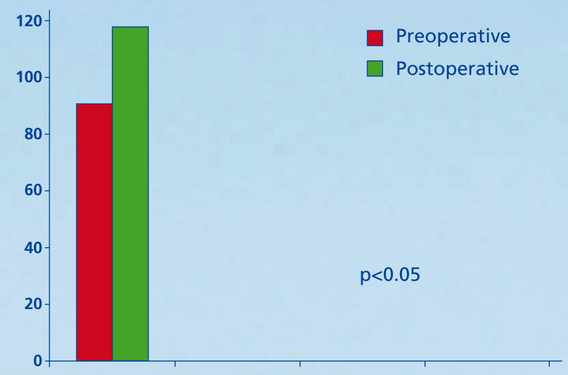
Fig. 8 - Intraoperative anal ultrasound after the Laser closure of the fistula tract.

PATIENT 2

Results: summary

Patient	Gender	Age	Etiology	Previous Fistula Surgery (N)	Result	Follow-up (MO)
G.R.	F	46	Crypto-glandular	2	Closed	18
M.L.	F	30	Crohn's Disease	0	Closed	16
V.M.	M	42	Crypto-glandular	1	Recurrence	14
F.B.	F	28	Crypto-glandular	1	Closed	10
C.M.	F	44	Crypto-glandular	3+ seton	Closed	10
R.S.	M	47	Crypto-glandular	2	Recurrence	9
E.L	M	71	Crypto-glandular	0	Closed	9
M.A.	M	51	Crypto-glandular	0	Closed	6
G.S.	F	34	Crohn's Disease	1+ seton	Closed	5
F.L.	M	38	Crypto-glandular	1	Closed	3

QOL assessement: GIQL Index



CCF Fecal Incontinence Score
(mean preop. and postop. values)