



Micro-TESE vs c-TESE Dans les NOA

Dr ROUAG TAREK

Urologue / andrologue libéral

Ali Mendjeli - Constantine

NOA

Azoospermie sécrétoire



Altération dans
la spermatogenèse



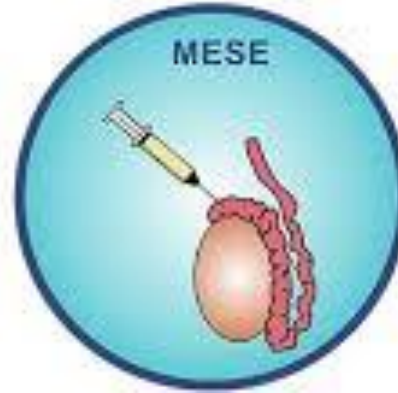
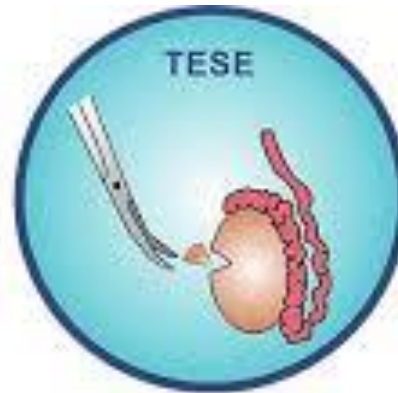
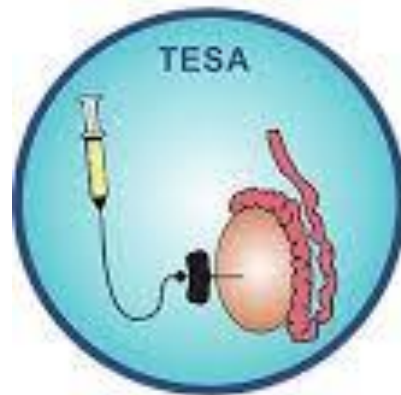


NOA

NOA

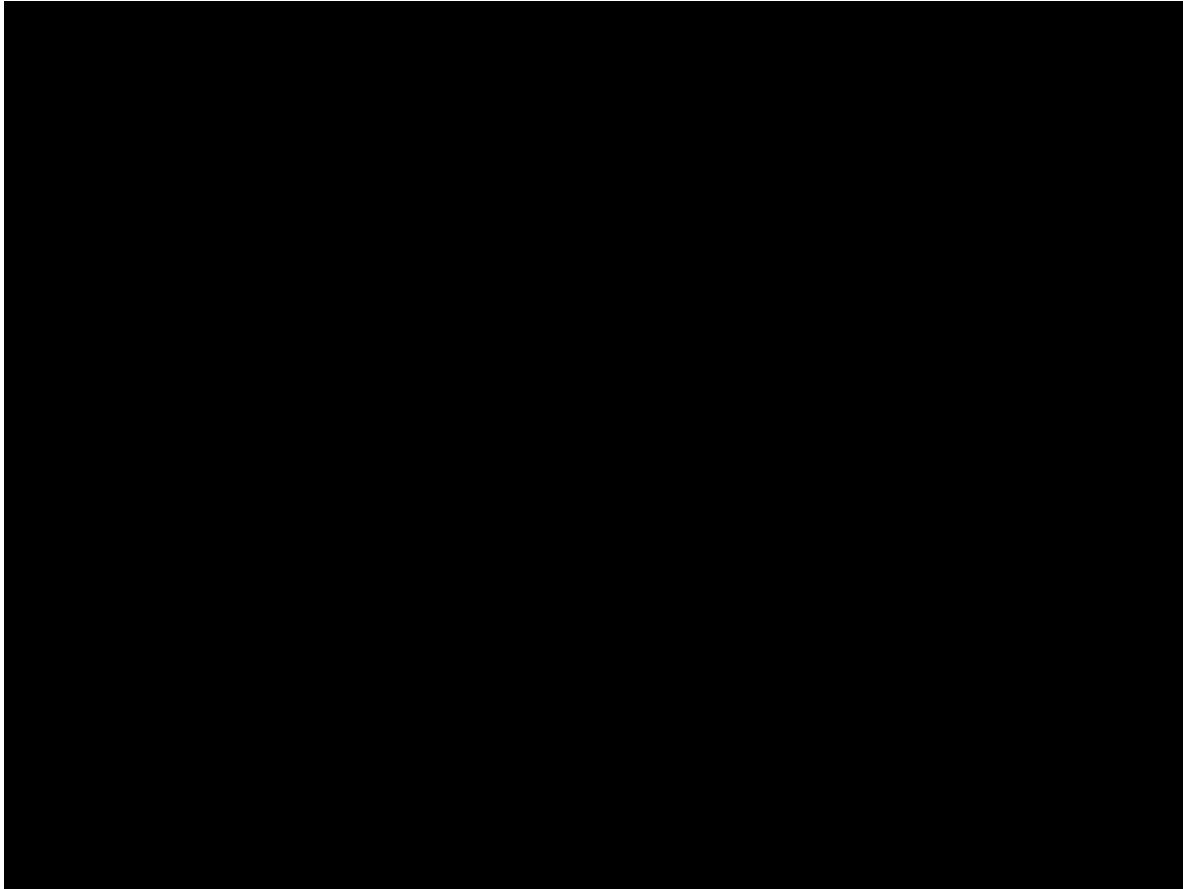
- Mauvais pronostic:
 - FSH élevée
 - Testostérone basse
 - Petit volume testiculaire
 - Klinefelter
 - Echec TESE antérieure
 - Formes histologiques (SCO, MA...)
 - Inhibine B +/-

Techniques d'extraction chirurgicale du sperme



A magnifying glass with a silver handle and a clear lens is positioned in the upper left corner of the slide. The background is a light blue gradient with a subtle pattern of overlapping circles and lines.

TESE (conventionnelle)

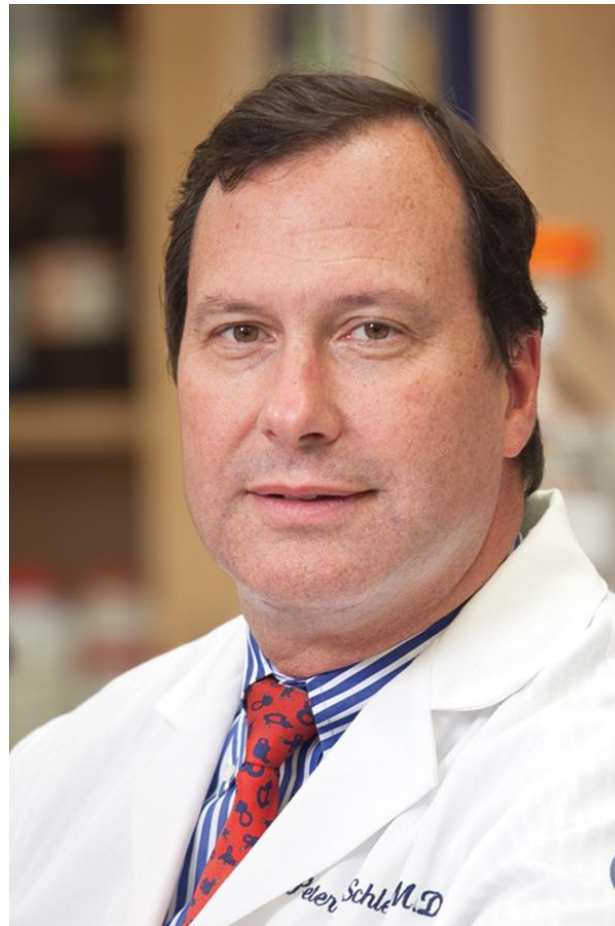


TESE (conventionnelle)



Micro TESE

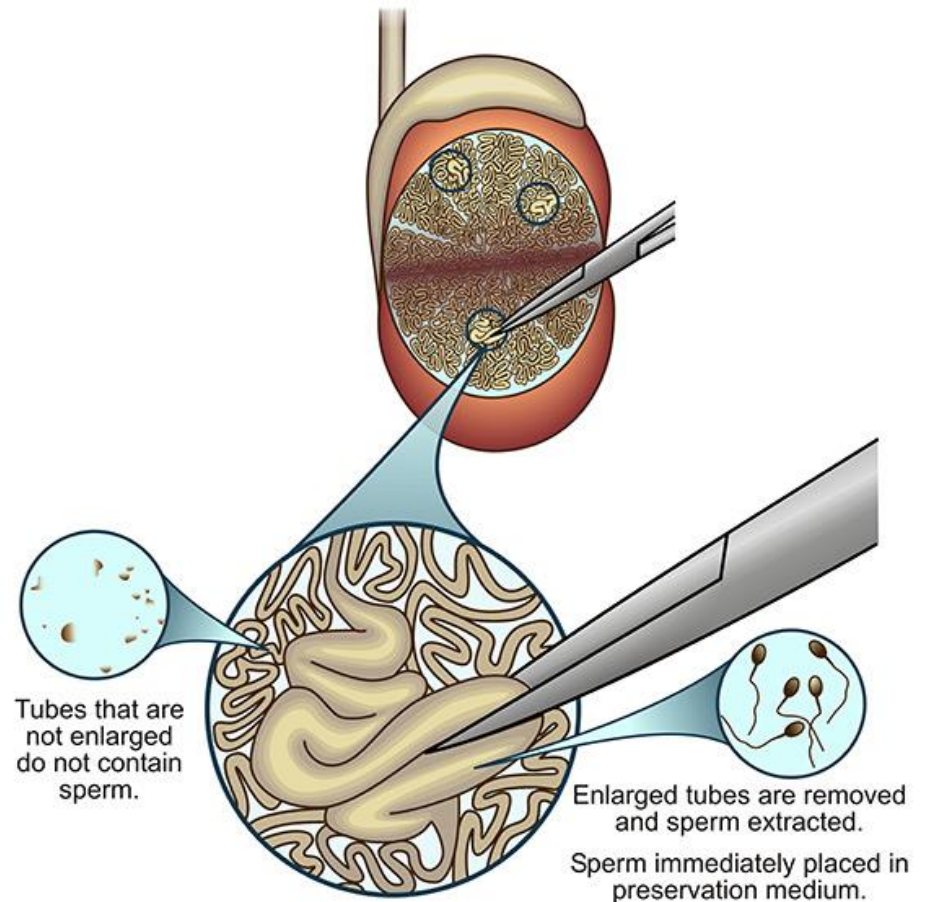
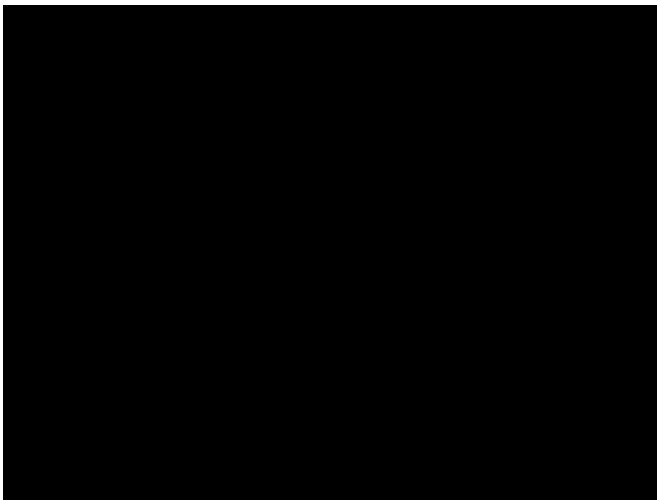
- Peter N Schlegel (1999)





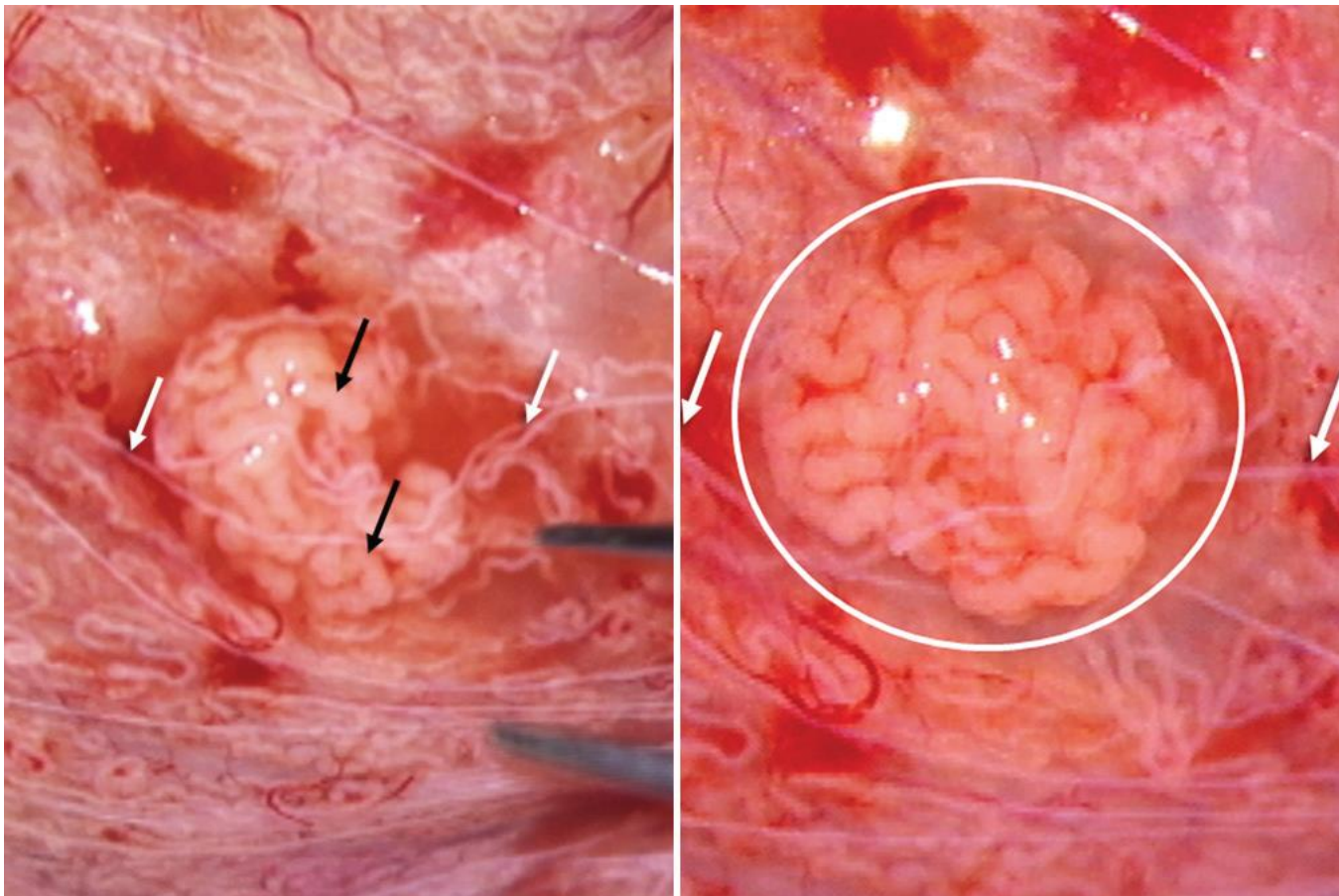
Une aiguille dans une botte de foin

Principle Micro-TESE



Objectifs Micro-TESE

- Identifier Sites de production



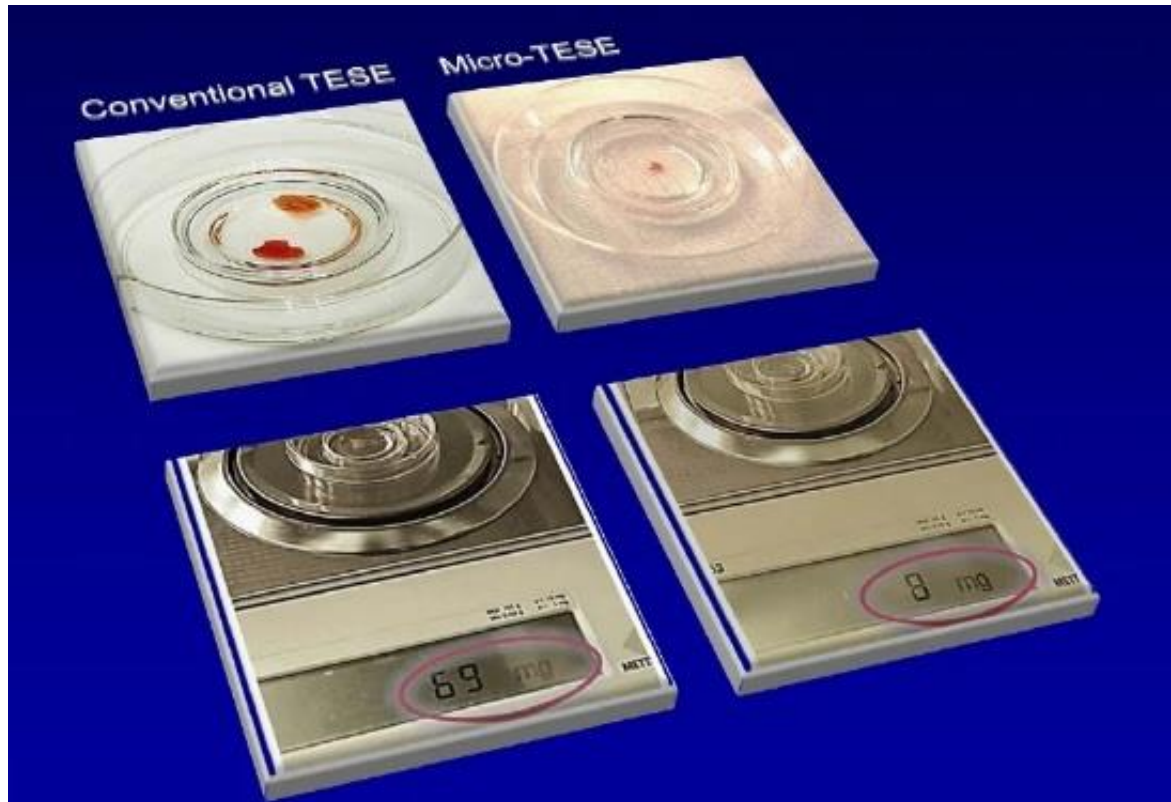
Objectifs Micro-TESE

- Préserver vascularisation testiculaire

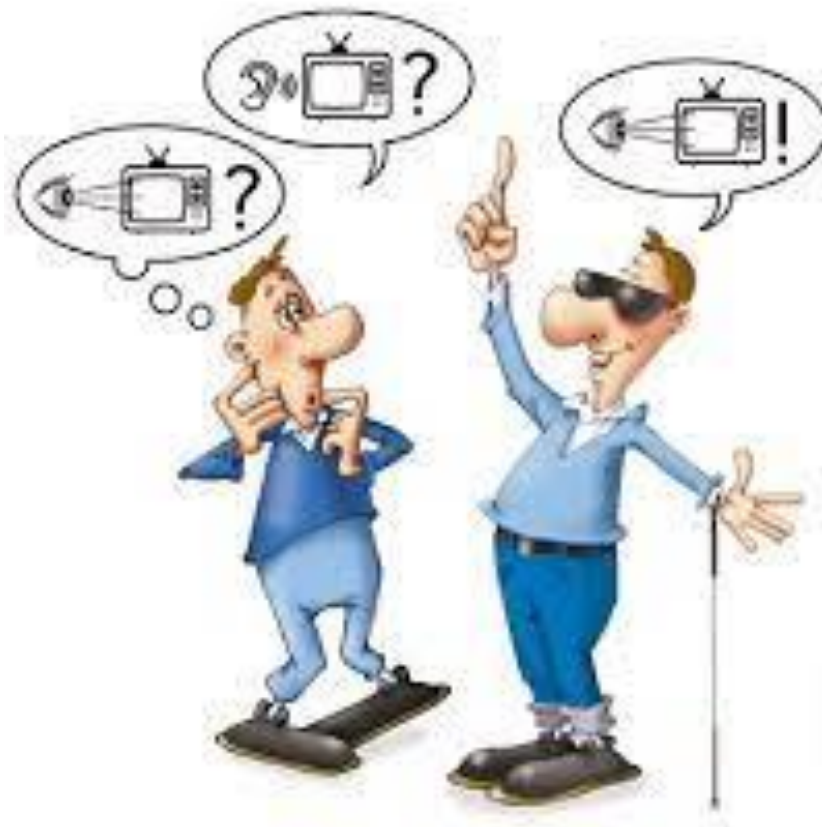


Objectifs Micro-TESE

- Petite quantité de tissu testiculaire



c-TESE vs micro-TESE





SRR

ANDROLOGY



ANDROLOGY

ISSN: 2047-2919

REVIEW ARTICLE

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Keywords:

microdissection sperm extraction, non-obstructive azoospermia, testicular sperm extraction

Received: 6-Aug-2013

Revised: 12-Sep-2013

Accepted: 24-Sep-2013

doi: 10.1111/j.2047-2927.2013.00148.x

Outcome of microdissection TESE compared with conventional TESE in non-obstructive azoospermia: a systematic review

¹Y. Deruyver, ²D. Vanderschueren and ¹F. Van der Aa

¹Departments of Urology, and ²Endocrinology, UZ Leuven, Leuven, Belgium

SRR

| Study | Design | Participants | Intervention | Outcome |
|--------------------------------|-------------------------------|--|---|---|
| Schlegel (1999) | Prospective, non-randomized | 49 NOA patients | Conventional multiple TESE ($n = 22$ attempts) MicroTESE ($n = 27$ attempts) | Sperm retrieval rate (SRR), average retrieval per sample, fertilization rate |
| Amer <i>et al.</i> (2000) | Prospective, non-randomized | 100 NOA patients with bilateral identical histopathology | On one side conventional single TESE ($n = 100$ testes) On other side microTESE ($n = 100$ testes) | SRR, weight of testicular tissue, sonographic FU at 1, 3 and 6 months |
| Okada <i>et al.</i> (2002) | Retrospective | 98 NOA patients | Conventional multiple TESE ($n = 24$ attempts) MicroTESE ($n = 74$ attempts) | SRR according to histology, sonographic FU at 1 and 6 months |
| Tsujimura <i>et al.</i> (2002) | Retrospective | 93 NOA patients | Conventional multiple TESE ($n = 37$ attempts) MicroTESE ($n = 56$ attempts) | SRR, mean operating time, SRR according to histology, microscopical findings during operation |
| Ramasamy <i>et al.</i> (2005) | Retrospective | 435 NOA patients | Conventional multiple TESE ($n = 83$ attempts) MicroTESE ($n = 460$ attempts) | SRR according to histology, sonographic and endocrine FU at 3 and 6 months |
| Colpi <i>et al.</i> (2009) | Controlled, pseudo-randomized | 154 NOA patients | Conventional single TESE ($n = 117$ testes) MicroTESE ($n = 78$ testes) | SRR according to histology, testicular volume and FSH |
| Ghalayini <i>et al.</i> (2011) | Controlled, pseudo-randomized | 133 NOA patients | Conventional multiple TESE ($n = 68$ attempts) MicroTESE ($n = 65$ attempts) | SRR according to histology, testicular volume and endocrine factors |



SRR

| | | | | |
|----------------------------|-----------------------------|--|---|--|
| Schlegel (1999) | Prospective, non-randomized | 49 NOA patients | Conventional multiple TESE ($n = 22$ attempts) MicroTESE ($n = 27$ attempts) | Sperm retrieval rate (SRR), average retrieval per sample, fertilization rate |
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A magnifying glass is positioned in the upper left corner of the slide, with its lens pointing towards the center. The background is a light blue gradient with a subtle pattern of wavy lines.

SRR

- SRR ; conventional TESE group ranged from 16.7 to 45% and from 42.9 to 63% in the microTESE group



SRR

Review

➤ [Fertil Steril. 2015 Nov;104\(5\):1099-103.e1-3. doi: 10.1016/j.fertnstert.2015.07.1136.](#)

Epub 2015 Aug 8.

Comparison of microdissection testicular sperm extraction, conventional testicular sperm extraction, and testicular sperm aspiration for nonobstructive azoospermia: a systematic review and meta-analysis

[Aaron M Bernie](#)¹, [Douglas A Mata](#)², [Ranjith Ramasamy](#)³, [Peter N Schlegel](#)⁴

Affiliations + expand

PMID: 26263080 DOI: [10.1016/j.fertnstert.2015.07.1136](#)

- Meta-analyse, 15 études
- SRR : 35% cTESE vs 52% mTESE

Sperm recovery and ICSI outcomes in men with non-obstructive azoospermia: a systematic review and meta-analysis


Giovanni Corona^{1,*}, Suks Minhas², Aleksander Giwercman³, Carlo Bettocchi⁴, Marij Dinkelmann-Smit⁵, Gert Dohle⁵, Ferdinando Fusco⁶, Ates Kadioglu⁷, Sabine Kliesch⁸, Zsolt Kopa⁹, Csilla Krausz¹⁰, Fiore Pelliccione¹¹, Alessandro Pizzocaro¹², Jens Rassweiler¹³, Paolo Verze⁶, Linda Vignozzi¹⁰, Wolfgang Weidner¹⁴, Mario Maggi¹¹, and Nikolaos Sofikitis¹⁵

¹Endocrinology Unit, Medical Department, Endocrinology Unit, Azienda Usl Bologna Maggiore-Bellaria Hospital, Bologna, Italy

²Department of Urology, Imperial College NHS Healthcare, London, UK ³Molecular Reproductive Medicine, Department of Translational Medicine, Faculty of Medicine, Lund University, Malmö, Sweden ⁴Department of Urology, Andrology and Kidney Transplantation Unit, Department of Emergency and Organ Transplantation, University of Bari, Bari, Italy ⁵Erasmus MC, University Medical Center, Rotterdam, the Netherlands ⁶Department of Neurosciences, Human Reproduction and Odontostomatology, University of Naples Federico II, Naples, Italy ⁷Department of Urology, Istanbul Faculty of Medicine, University of Istanbul, Istanbul, Turkey ⁸Department of Clinical and Surgical Andrology, Centre of Reproductive Medicine and Andrology (CeRA), Münster University Hospital (UKM), Münster, Germany ⁹Andrology Centre, Department of Urology Semmelweis University, Budapest, Hungary ¹⁰Andrology, Women's Endocrinology and Gender Incongruence Unit, Department of Experimental and Clinical Biomedical Sciences, Azienda Ospedaliera Universitaria Careggi, Florence, Italy

¹¹Diabetes and Metabolism Unit, Department of Internal Medicine, Azienda ASL 02 Chieti-Lanciano-Vasto, F. Renzetti Hospital, Lanciano, Italy ¹²Endocrinology Unit, Department of Biomedical Sciences, Humanitas University and Humanitas Research Center IRCCS, Rozzano, Milan, Italy ¹³Department of Urology, SLK-Kliniken Heilbronn, University of Heidelberg, Heilbronn, Germany ¹⁴Department of Urology, Pediatric Urology and Andrology, Justus Liebig University of Giessen, Giessen, Germany ¹⁵Department of Urology, Ioannina University School of Medicine, Ioannina, Greece

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 <http://orcid.org/0000-0002-9894-2885>



SRR

SRR

- Meta-analyse (Cochrane, Medline, Embasse)
- 117 études / 1236
- 56 études c-TESE
- 43 études micro-TESE
- 8 études comparatives
- 10 : Approche mixte

A magnifying glass is positioned in the upper left corner of the slide, with its lens pointing towards the center. The background is a light blue gradient with a subtle pattern of wavy lines.

SRR

- SRR ; 46% cTESE vs 46% mTESE



Complications

Human Reproduction vol.15 no.3 pp.653–656, 2000

Prospective comparative study between microsurgical and conventional testicular sperm extraction in non-obstructive azoospermia: follow-up by serial ultrasound examinations

Medhat Amer^{1,3,4}, Ahmed Ateyah¹, Ragab Hany² and Wael Zohdy^{1,3}

Departments of ¹Andrology and ²Radiology, Cairo University Hospitals, Cairo and ³Adam International Clinic, Giza, Egypt

⁴To whom correspondence should be addressed at: Adam International Clinic, 20 Aden Street, Mohandessin, Giza, Egypt

Human Reproduction Update, Vol.13, No.6 pp. 539–549, 2007

Advance Access publication September 24, 2007

doi:10.1093/humupd/dmm029

Which is the best sperm retrieval technique for non-obstructive azoospermia? A systematic review

P. Donoso^{1,3}, H. Tournaye² and P. Devroey²

¹Reproductive Medicine Unit, Clinica Alemana, Vitacura 5951, Santiago, Chile; ²Centre for Reproductive Medicine University Hospital, Dutch-speaking Brussels Free University (Vrije Universiteit Brussel), Brussels, Belgium



Complications

- La c-TESE a été associée à un taux plus élevé de complications par rapport aux autres techniques.
- 51,7 % des patients ont été trouvés avec un hématome intra-testiculaire au scrotum (US 3 mois après chir), avec fibrose testiculaire observée chez jusqu'à 30 % des patients lors de l'évaluation à 6 mois.

Complications

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ANDROLOGY



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¹Departments of Urology, and ²Endocrinology, UZ Leuven, Leuven, Belgium



ELSEVIER

Urology

Volume 65, Issue 6, June 2005, Pages 1190-1194

Adult urology

CME article

Structural and functional changes to the testis after conventional versus microdissection testicular sperm extraction



Complications

Complications

- Risque d'hypogonadisme après TESE dû à une atrophie testiculaire, les patients atteints de NOA ont présenté une diminution moyenne de 2,7 nmol/l de la testostérone 6 mois après la cTESE, qui revient à la ligne de base dans les 18 à 26 mois.
- Taux de complications plus faibles avec mTESE par rapport à cTESE, (En termes d'hématome et de fibrose). Les deux procédures ont montré une reprise des niveaux de testostérone de base après un suivi à long terme.

Complications




Journal of
Clinical Medicine



Review

Endocrine Follow-Up of Men with Non-Obstructive Azoospermia Following Testicular Sperm Extraction

Evangelia Billa ^{1,*†}, George A. Kanakis ^{2,*†} and Dimitrios G. Goulis ¹ 

¹ Unit of Reproductive Endocrinology, 1st Department of Obstetrics and Gynecology, Medical School, Aristotle University of Thessaloniki, 56403 Thessaloniki, Greece; dgg@auth.gr

² IVF Unit, Department of Endocrinology, Athens Naval and Veteran Affairs Hospital, 11521 Athens, Greece

* Correspondence: evbilla@gmail.com (E.B.); fyleas52@gmail.com (G.A.K.)


† Equal contribution.

Human Reproduction Update, Vol.24, No.4 pp. 442–454, 2018

Advanced Access publication on May 3, 2018 doi:10.1093/humupd/dmy015

human
reproduction
update

The risk of TESE-induced hypogonadism: a systematic review and meta-analysis

Jitske Eliveld, Madelon van Wely, Andreas Meißner, Sjoerd Repping, Fulco van der Veen, and Ans M.M. van Pelt  *

Center for Reproductive Medicine, Academic Medical Center, University of Amsterdam, 1105AZ Amsterdam, The Netherlands

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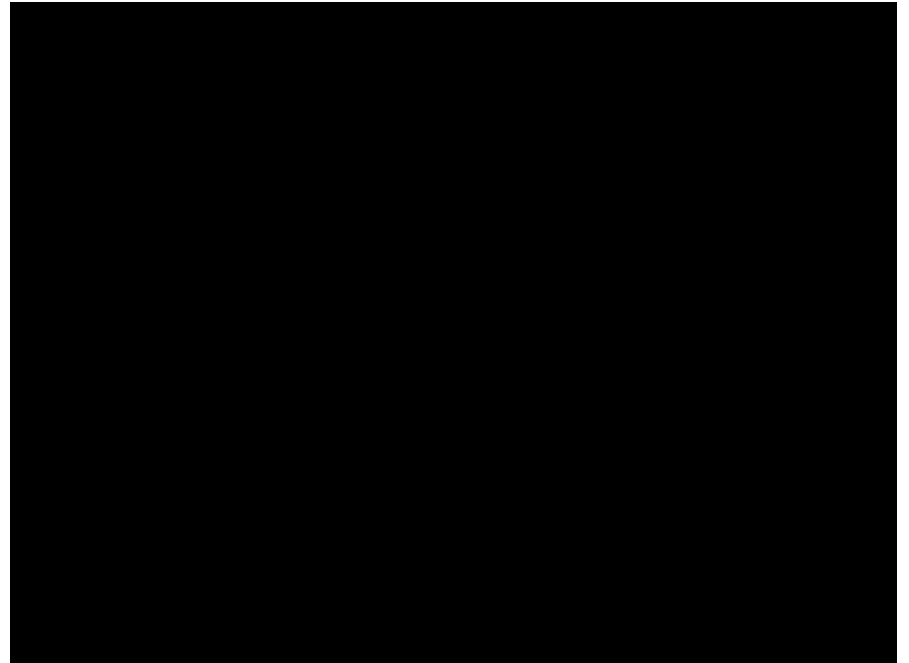
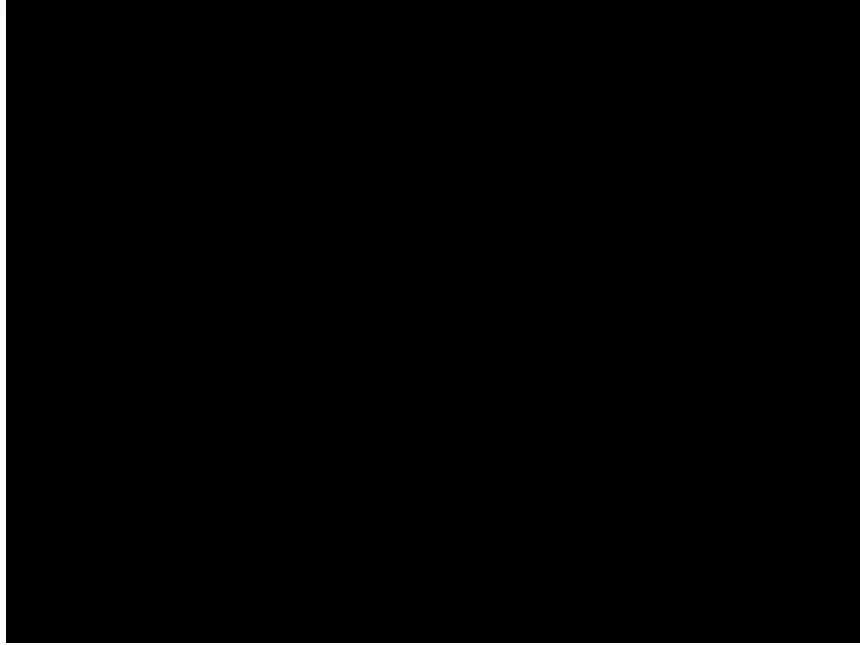


Complications

- Par rapport à cTESE, il a été rapporté que mTESE a moins de complications postopératoires et effets négatifs sur la fonction testiculaire.
- Hommes avec sd de Klinefelter et NOA ont eu la plus forte diminution des niveaux de testostérone 6 mois après TESE (diminution moyenne de 4,1 et 2,7 nmol/L), qui est revenu aux niveaux de base 26 et 18 mois après TESE.

A magnifying glass with a silver handle and a clear lens is positioned in the top-left corner of the slide. The background is a light blue gradient with a subtle pattern of overlapping circles.

Micro-TESE aux loupes ?





Micro-TESE aux loupes ?

Journal of Andrology, Vol. 26, No. 2, March/April 2005
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The Utility of Optical Loupe Magnification for Testis Sperm Extraction in Men With Nonobstructive Azoospermia

3,5 x

JOHN P. MULHALL, SAMEH W. GHALY, NADID AVTV, AND ABSAAR AHMED

From the Departments of Urology, Loyola University Medical Center and Stritch School of Medicine, Maywood, Illinois.

Bouker et al. *Basic and Clinical Andrology* (2019) 29:11
<https://doi.org/10.1186/s12610-019-0091-9>

Basic and Clinical Andrology

RESEARCH ARTICLE

Open Access

6 x

Step-by-step loupes-mTESE in non-obstructive azoospermic men, a retrospective study



Amin Bouker*, Lazhar Halouani, Mahmoud Kharouf, Habib Latrous, Mounir Makni, Ouafi Marrakchi, Raoudha Zouari and Salima Fourati



Recommendations

EAU Guidelines on Sexual and Reproductive Health

A. Salonia (Chair), C. Bettocchi, J. Carvalho, G. Corona,
T.H. Jones, A. Kadioğlu, J.I. Martinez-Salamanca,
S. Minhas (Vice-chair), E.C. Serefoğlu, P. Verze
Guidelines Associates: L. Boeri, P. Capogrosso,
A. Cocci, K. Dimitropoulos, M. Gül,
G. Hatzichristodoulou, A. Kalkanli, L.A. Morgado, V. Modgil,
U. Milenkovic, G. Russo, T. Tharakan
Guidelines Office: J.A. Darraugh



Recommendations

case control studies whilst Corona *et al.* [1912] also included the single randomised controlled trial), but it is important to note that all the studies comparing cTESE and mTESE have shown that the latter is superior in retrieving sperm.

In a study assessing the role of salvage mTESE after a previously failed cTESE or TESA, sperm were successfully retrieved in 46.5% of cases [1857]. In studies reporting sperm retrieval by micro-TESE for men who had failed percutaneous testicular sperm aspiration or non-microsurgical testicular sperm extraction, the SRR was 39.1% (range 18.4-57.1%) [1973, 1974]. Similarly, a variable SRR has been reported for salvage mTESE after a previously failed mTESE (ranging from 18.4% to 42.8%) [1975, 1976].



Microdissection TESE is the technique of choice for retrieving sperm in patients with NOA.

Weak



Recommendations

of THE JOURNAL
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Diagnosis and Treatment of Infertility in Men: AUA/ASRM Guideline Part I



Peter N. Schlegel, MD,* Mark Sigman, MD, Barbara Collura, Christopher J. De Jonge, PhD, HCLD(ABB), Michael L. Eisenberg, MD, Dolores J. Lamb, PhD, HCLD(ABB), John P. Mulhall, MD, Craig Niederberger, MD, FACS, Jay I. Sandlow, MD, Rebecca Z. Sokol, MD, MPH, Steven D. Spandorfer, MD, Cigdem Tanrikut, MD, FACS, Jonathan R. Treadwell, PhD, Jeffrey T. Oristaglio, PhD and Armand Zini, MD



Recommandations

Sperm Retrieval.

28. For men with NOA undergoing sperm retrieval, microdissection testicular sperm extraction (TESE) should be performed. (Moderate Recommendation; Evidence Level: Grade C)

- SRR 1,5 x dans micro-TESE que c-TESE.
- Moins d'effet sur taux de testostérone après micro-TESE que c-TESE (Risque de déficit en testostérone nécessitant supplémentation, même après micro-TESE).





Micro-BT et NOA sévères

UPSALA JOURNAL OF MEDICAL SCIENCES
2020, VOL. 125, NO. 2, 99–103
<https://doi.org/10.1080/03009734.2020.1737600>



ORIGINAL ARTICLE

 OPEN ACCESS  Check for updates

Utility of micro-TESE in the most severe cases of non-obstructive azoospermia

Göran Westlander

Livio Fertility Center, Göteborg, Sweden



Micro-BT et NOA sévères

Micro-dissection testicular sperm extraction as an alternative for sperm acquisition in the most difficult cases of Azoospermia: Technique and preliminary results in India

Mohamed C Ashraf,
Sankalp Singh,
Dharma Raj,
Sujatha Ramakrishnan,
Sandro C Esteves¹

CRAFT Hospital and Research
Centre, Kodungalloor,
Kerala, India, ¹ANDROFERT,
Andrology and Human
Reproduction Clinic and
Referral Center for Male
Reproduction, Campinas,
Brazil

Micro-BT et NOA sévères

- Micro-TESE : Technique de choix
- Meilleurs SRR, complications moindres
- Non-généralisation : cout, temps opératoire, manque de centres experts.





Nouvelle approche

Franco *et al.* *BMC Urology* (2016) 16:20
DOI 10.1186/s12894-016-0138-6

BMC Urology

RESEARCH ARTICLE

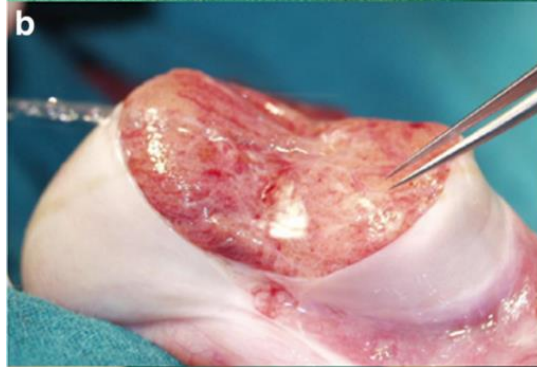
Open Access

A novel stepwise micro-TESE approach in non obstructive azoospermia



Giorgio Franco¹, Filomena Scarselli², Valentina Casciani², Cosimo De Nunzio³, Donato Dente⁴, Costantino Leonardo^{1*}, Pier Francesco Greco², Alessia Greco², Maria Giulia Minasi² and Ermanno Greco²

Nouvelle approche





Take home messages

- Micro-TESE : gold standard SRR.
- Micro-TESE moins de complications que c-TESE.
- Tout micro-TESE ou cas les plus difficiles.
- Algérie : avenir micro-TESE ? Loupes ???

