

12th Congresso Nazionale AME & 6th Joint Meeting with AACE Bari, Italy, 7-10th November 2013



Mini-invasive treatments for thyroid lesions? "Take home messages"

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Mini-invasive treatments for thyroid lesions

Bari, Italy, 7-10 November 2013

Who are our experts?

- **Ethanol ablation (PEI)**
- **Laser ablation (ILP)**
- **Radiofrequency ablation (RFA)**
- **Rinaldo Guglielmi**
- **Roberto Valcavi**
- **Maurilio Deandrea**

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Maserati Quattroporte

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Ferrari California

How do we evaluate cost-effectiveness?

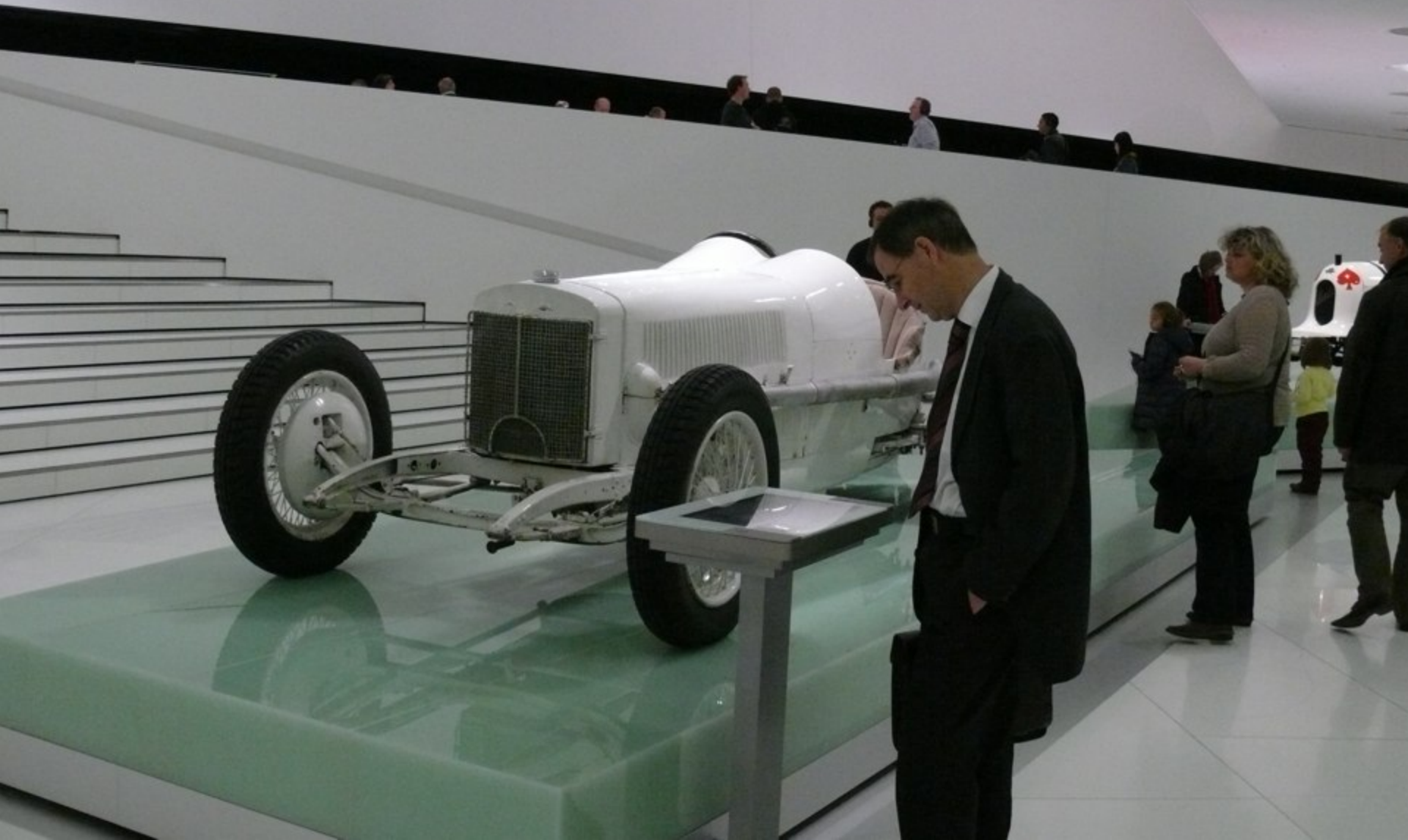


How do we evaluate cost-effectiveness?



And quality of life?

With my age, can I embrace modern technology?



Thyroid nodule(s)

History
Palpation
TSH
Diagnostic
Imaging

CLINICAL EVALUATION

TSH ↓

Scintigraphy

Hot nodule

Strong suspicion
of malignancy

Surgery

FNAB



No treatment
Surgery
Radioiodine
PEI, ILP, RFA

Diagnostic

Nondiagnostic

Malignant

Suspicious

Benign

**Repeat FNAB
(US-guidance)**

Surgery

Surgery



No treatment
Surgery
L-T4
PEI, ILP, RFA

Nondiagnostic

Surgery



Limited destruction with PEI, LLP, and RFA



No transplacental pasage or into breast milk



Hvad taler du om!? Læg nu bare de æg!

What are you talking about!? Just lay that egg!



Nej! Jeg vil have en epidural!

No! I want a cheap, long-lasting epidural!

Indications for non-surgical thyroid nodule therapy

Phenotypes accessible?

- **Solitary scintigraphically cold/non-functioning thyroid nodules**
 - Solid
 - Cystic
 - Mixed solid/cystic
- **Solitary scintigraphically warm/hot functioning thyroid nodules**
 - Solid
 - Mixed solid/cystic
- *Multinodular goiter?*
- *Thyroid cancer?*
- *Metastases to thyroid lymph nodes from thyroid cancer?*

Indications for non-surgical thyroid nodule therapy

Phenotypes accessible for PEI

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- ***Metastases to thyroid lymph nodes from thyroid cancer?***

Advantages and disadvantages of ethanol ablation (PEI) in thyroid nodules

Cold, solid non-functioning benign nodules

Advantages

- Outpatient therapy
- 50% reduction of nodule size
- Up to 75% with repeat therapy
- No radiation hazard
- No surgical or anaesthesiol. risk
- No permanent hypothyroidism
- Efficacy far higher than LT4
- Low cost, rapido

Advantages and disadvantages of ethanol ablation (PEI) in thyroid nodules

Cold, solid non-functioning benign nodules

Advantages

- Outpatient therapy
- 50% reduction of nodule size
- Up to 75% with repeat therapy
- No radiation hazard
- No surgical or anaesthesiol. risk
- No permanent hypothyroidism
- Efficacy far higher than LT4
- Low cost

Disadvantages

- Recurrence rate high ($\geq 50\%$)
- "Mild" side-effects (5-10%)
- Pain the rule
- Rare, grave side-effects
- No reduction of extranodular size
- No histology
- May impede subsequent surgery
- No compar. with surg., ILP or RFA
- Quality of life improvement?

Advantages and disadvantages of ethanol ablation (PEI) in thyroid nodules

Warm/hot solid functioning benign nodules

Advantages

- Outpatient therapy
- 30-40% reduction of nodule size
- Up to 70% with repeat therapy
- **No radiation hazard**
- No surgical or anaesthesiol. risk
- Permanent hypothyroidism rare
- **Low cost, rapido**

Advantages and disadvantages of ethanol ablation (PEI) in thyroid nodules

Warm/hot solid functioning benign nodules

Advantages

- Outpatient therapy
- 30-40% reduction of nodule size
- Up to 70% with repeat therapy
- **No radiation hazard**
- No surgical or anaesthesiol. risk
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- **Low cost**

Disadvantages

- **Recurrence rate high ($\geq 50\%$)**
- "Mild" side-effects (5-10%)
- **Pain the rule**
- Rarely, grave side-effects
- No reduction of extranodular size
- No histology
- **May impede subsequent surgery**
- No compar. with surg. ,RAI, ILP or RFA

Advantages and disadvantages of ethanol ablation (PEI) in thyroid nodules

Cold, cystic non-functioning benign nodules

Advantages

- Outpatient therapy
- Remission-rate $\geq 80\%$
- Pain rare
- No radiation hazard
- No surgical or anaesthesiol. risk
- No permanent hypothyroidism
- Low cost and rapido

Advantages and disadvantages of ethanol ablation in thyroid nodules

Cold, cystic non-functioning benign nodules

Advantages

- Outpatient therapy
- **Remission-rate $\geq 80\%$**
- **Pain rare**
- No radiation hazard
- No surgical or anaesthesiol. risk
- No permanent hypothyroidism
- **Low cost and rapido**

Disadvantages

- Recurrence rate around 20%
- "Mild" side-effects (5-10%)
- Rarely grave side-effects
- No reduction of extra-cystic size
- **No histology**
- May impede subsequent surgery
- No comparison with surg., ILP or RFA
- Quality of life improved?

Non-surgical thyroid nodule management

Ethanol (PEI) ablation

Conclusions

- Used since the early 1990s. **Low cost**
- Available data in functioning and non-functioning solid benign thyroid nodules
- Shrinkage of ca. 50% with one and up to >70% with repeated sessions
- **Many side-effects related to pain and extra-thyroidal seepage of ethanol. L.a. suffices**
- **Best evidence of efficacy and limited side-effects for cystic nodules**
- Randomized studies and head-to-head comparisons with ILP, RFA, and surgery not available
- At large replaced by other US-guided interventional techniques
- Long-term efficacy hampered by **recurrence**
- Should only be performed by individuals skilled in interventional US
- Treatment of thyroid cancer or metastatic lymph nodes - experimental

Non-surgical thyroid nodule management

Interstitial laser photocoagulation (ILP)

Conclusions

- Used since the early 2000s. **More expensive** than PEI
- Available data in functioning and non-functioning solid benign thyroid nodules
- Shrinkage of ca. 50% with one and up to >70% with repeated sessions
- **Few side-effects** related to pain and no extra-thyroidal effect. L.a. suffices
- **Best evidence of efficacy and limited side-effects for solid nodules**
- Randomized studies and head-to-head comparisons with PEI, RFA, and surgery very scarce
- **Has at large replaced PEI** as US-guided interventional technique of preference
- Long-term efficacy and recurrence rate remain to be defined
- Should only be performed by individuals skilled in interventional US
- Treatment of thyroid cancer or metastatic lymph nodes - experimental

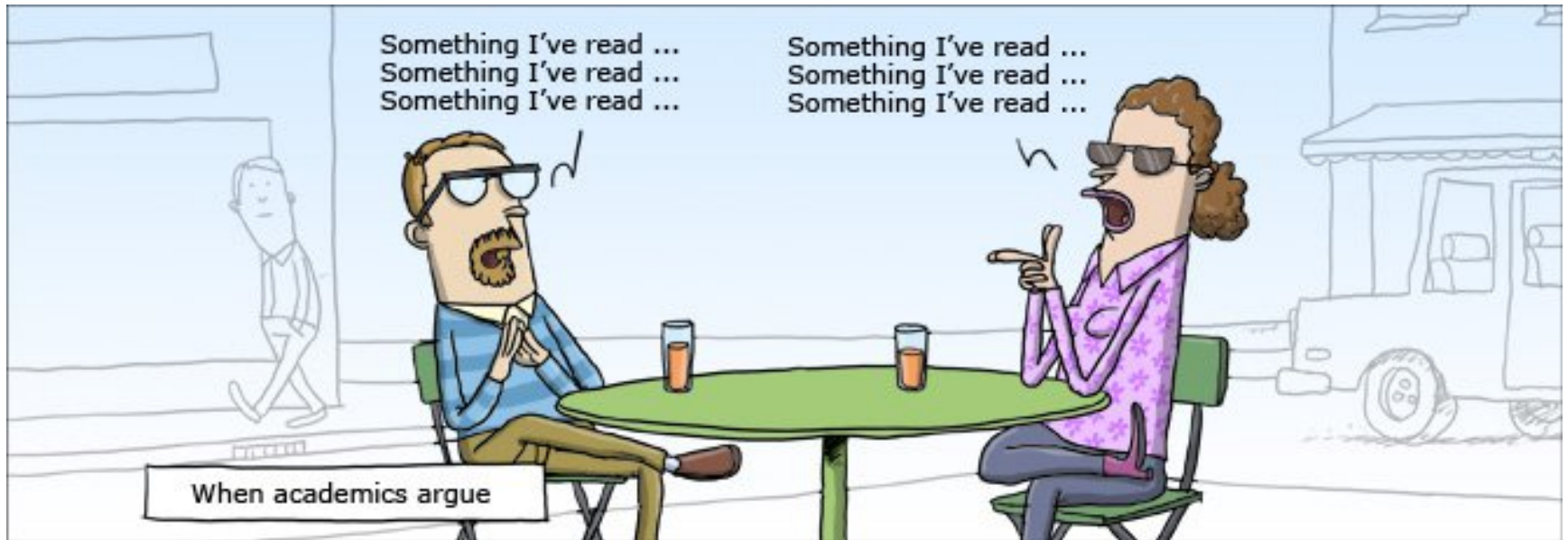
Non-surgical thyroid nodule management

Radiofrequency ablation (RFA)

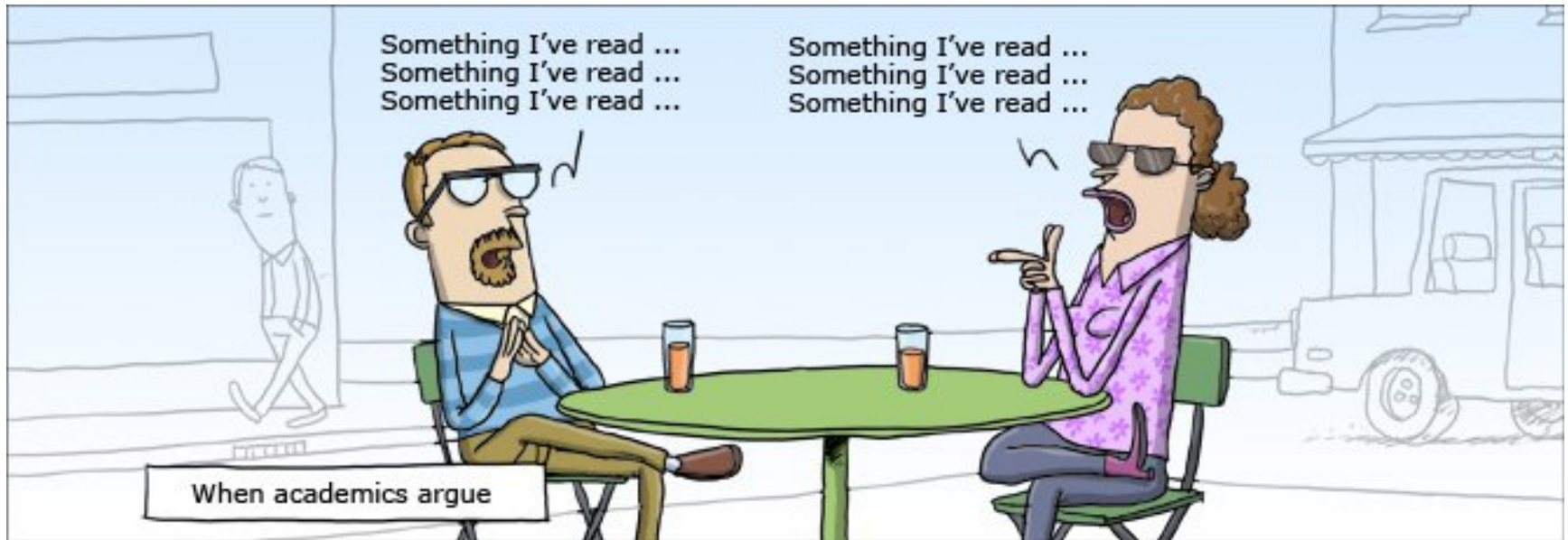
Conclusions

- Used since the early 2000s. **More expensive than PEI and ILP**
- Available data in functioning and non-functioning solid benign thyroid nodules
- Shrinkage of ca. 50% with one and up to >70% with repeated sessions
- **Fewer side-effects** related to pain and no extra-thyroidal destruction.
Necessitates conscious sedation
- **Best evidence of efficacy and limited side-effects for solid cold nodules**
- Randomized studies and head-to-head comparisons with PEI, ILP, and surgery very scarce
- Only available in **few centres**
- Long-term efficacy remains to be proven. Recurrence rate unestablished
- Should only be performed by individuals skilled in interventional US
- Treatment of thyroid cancer or metastatic lymph nodes - experimental

Many opinions and mounting evidence regarding non-surgical therapy of nodular thyroid disease



Many opinions and mounting evidence regarding non-surgical therapy of nodular thyroid disease



- Is current focus on fascination of the technologies (too many choices)?
- Suggest focus on eligibility, cost-effectiveness, quality of life - individualized
- Head-on comparisons between techniques, including that of surgery
- Define "window of opportunity" for PEI, ILP, RFA, and other techniques

Mini-invasive treatments for thyroid lesions

Take home messages



Modern times are here to stay

Mini-invasive treatments for thyroid lesions

Take home messages



Modern times are here to stay



Suggest that you do not turn your back on them