What did I learn from the systematic review on treatment success for type II endoleak

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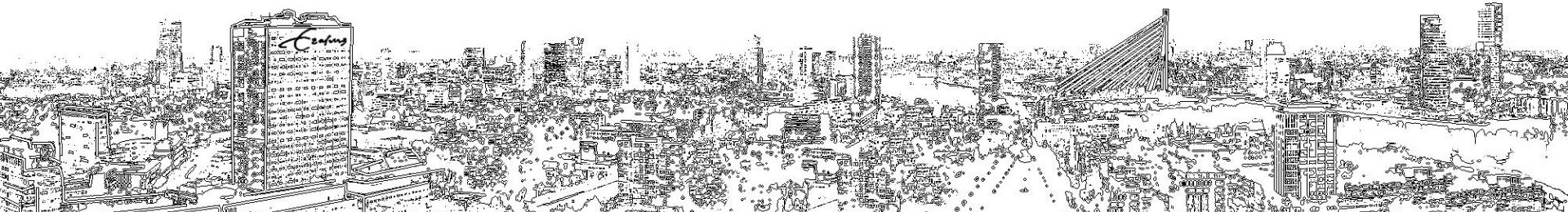
Disclosure

Speaker name:

Hence Verhagen

I have the following potential conflicts of interest to report:

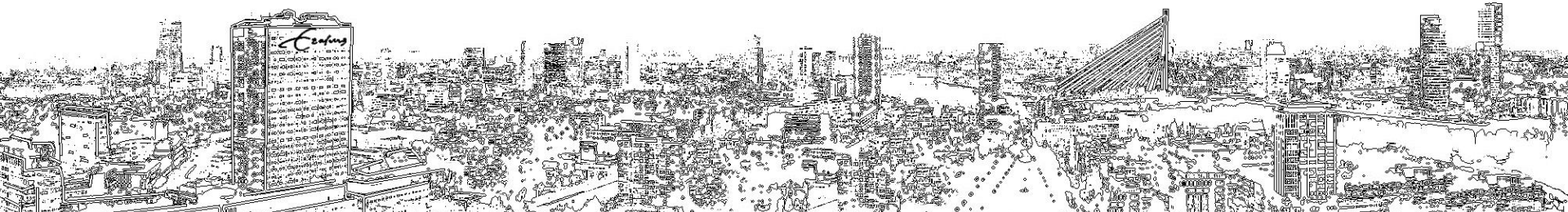
✓ Consulting



The importance of type 2 EL

- Subject of scientific discussion
- No consensus on the threshold for treatment
- Controversy on the optimal diagnosis
- Controversy on the optimal treatment

- By far the most common sec. intervention



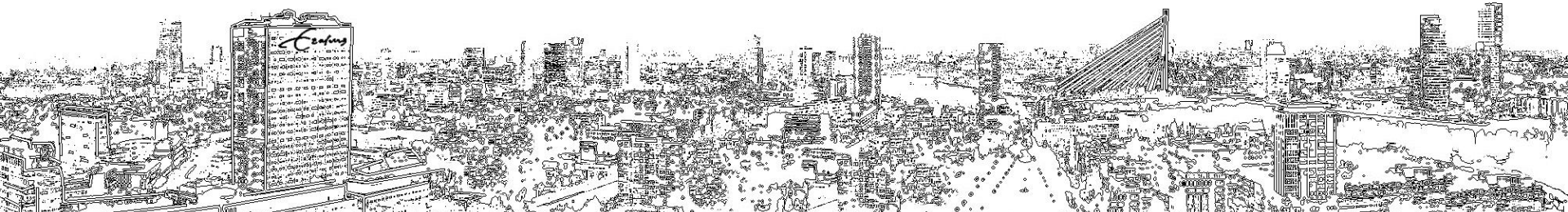
Let's look at level 1 evidence

Systematic review

Type II endoleak after endovascular aneurysm repair

D. A. Sidloff[1], P. W. Stather[1], E. Choke[1], M. J. Bown[1,2] and R. D. Sayers[1]

British Journal of Surgery 2013; **100**: 1262–1270

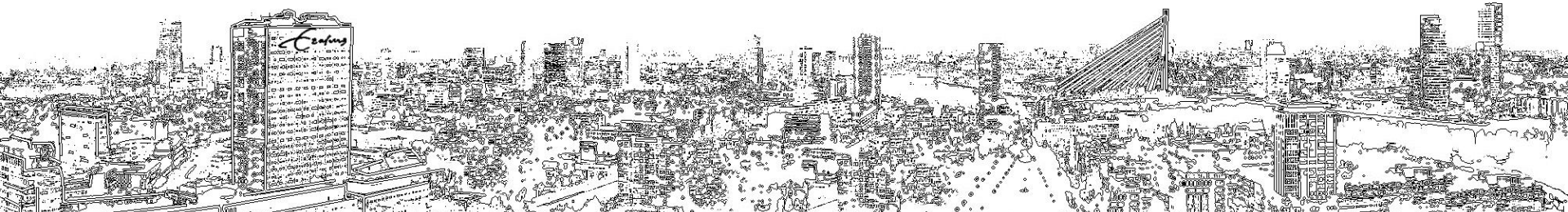


Let's look at level 1 evidence

*** Fourteen patients (0·9 per cent) with isolated type II endoleak had ruptured abdominal aortic aneurysm**

Results: Thirty-two non-randomized retrospective studies were included, totalling 21 744 patients who underwent EVAR. There were 1515 type II endoleaks and 393 interventions. Type II endoleak was seen in 10·2 per cent of patients after EVAR; 35·4 per cent resolved spontaneously. Fourteen patients (0·9 per cent) with isolated type II endoleak had ruptured abdominal aortic aneurysm; six of these did not have known aneurysm sac expansion. Of 393 interventions for type II endoleak, 28·5 per cent were unsuccessful. Translumbar embolization had a higher clinical success rate than transarterial embolization (81 *versus* 62·5 per cent respectively; $P = 0.024$) and fewer recurrent endoleaks were reported (19 *versus* 35·8 per cent; $P = 0.036$). Transarterial embolization also had a higher rate of complications (9·2 per cent *versus* none; $P = 0.043$).

Conclusion: Aortic aneurysm rupture after EVAR secondary to an isolated type II endoleak is rare (less than 1 per cent), but over a third occur in the absence of sac expansion. Translumbar embolization had a higher success rate with a lower risk of complications.



Systematic review

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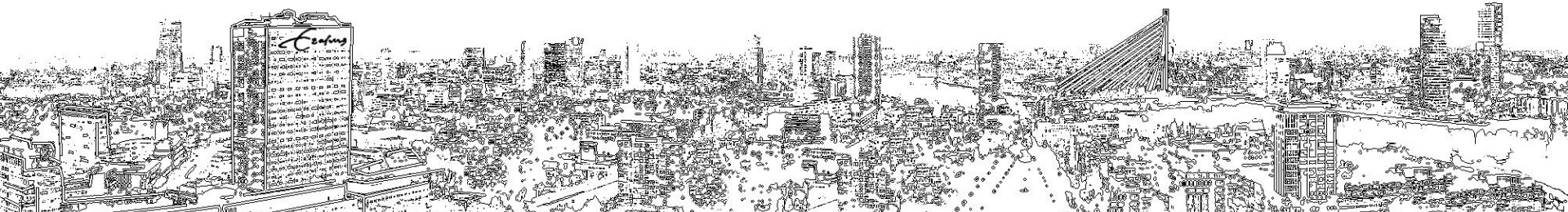
- When reviewing the original publications thoroughly, a causal nexus is generally speculative
- the correct number should be 0.7 per cent as three ruptures were included despite being associated with type III endoleak at the time of rupture

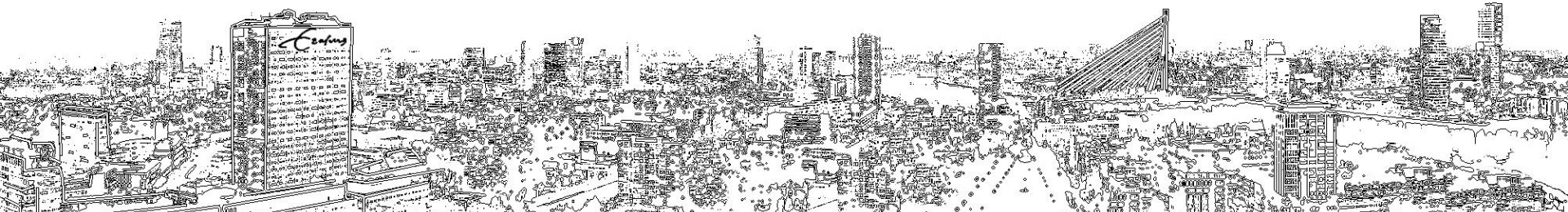


Systematic review on 21.744 patients

- 10% of patients had a type II endoleak
- 9 patients ruptured **possibly** due to a type II endoleak

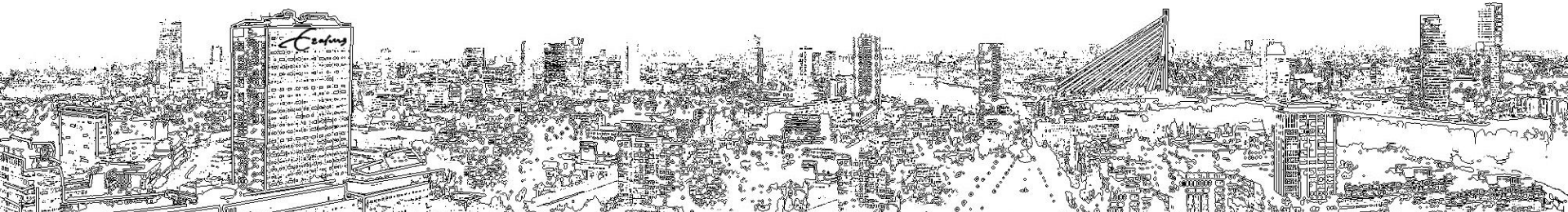
0,7 % of all patients with a type II endoleak

0,04 % of all patients……..

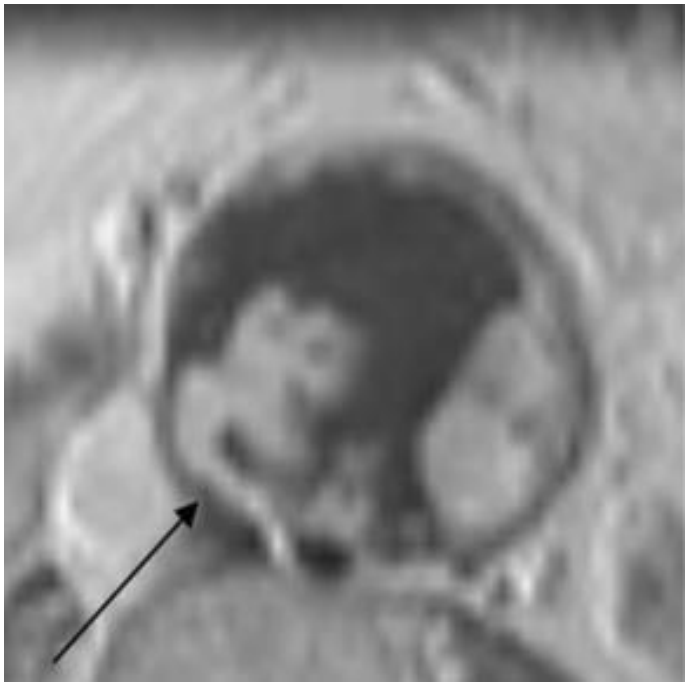


Is a type 2 EL dangerous?

- **It doesn’t seem to be**
- **General practice: only treat in presence of aneurysm growth**



Type 2 EL treatment

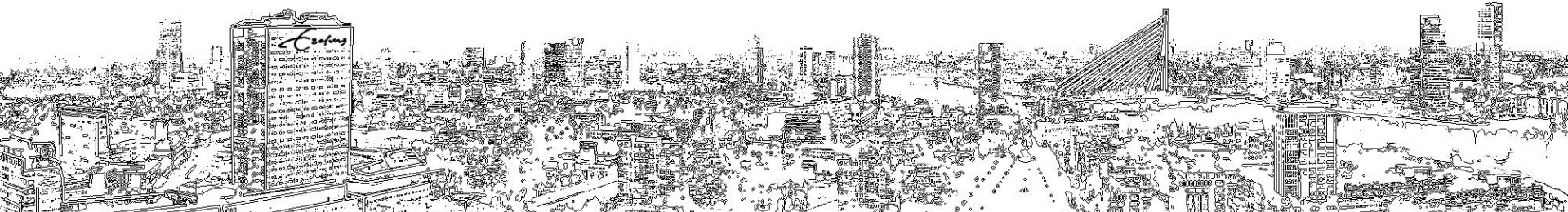


Ease of mind……

The questions remain

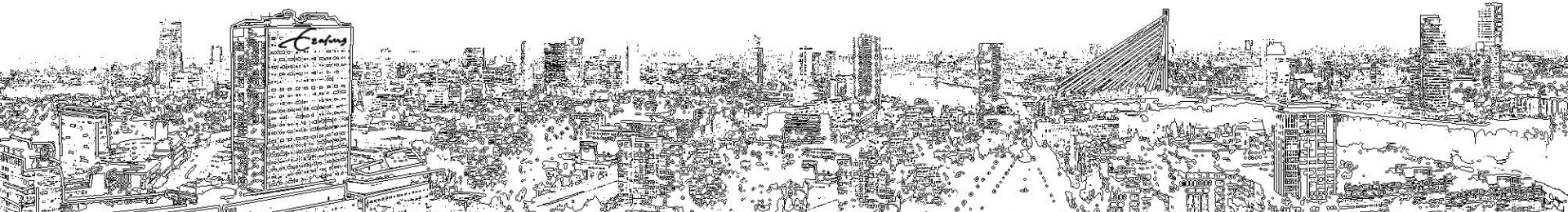
- Unclear ratio benefit vs risk of doing harm
- Unclear what the true success rate is
- Unclear what the definition of success is

- Unclear if type 2 EL is the cause of growth
- Unclear on what data this treatment is based



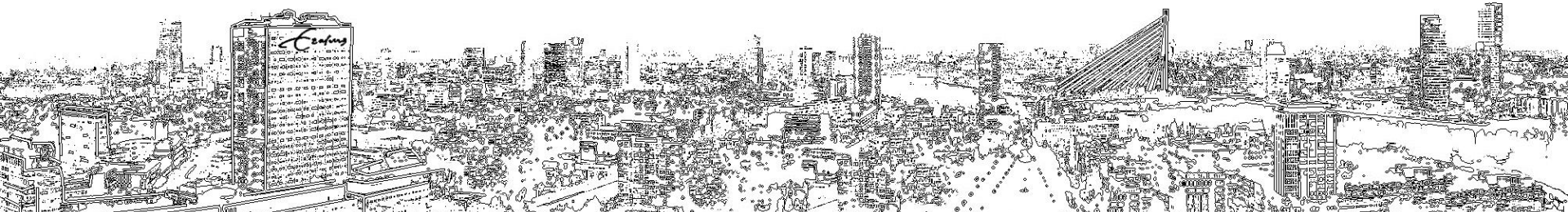
Systematic review

Treatment Results
for Persistent Type 2 Endoleaks



Selection Procedure

1599 studies identified



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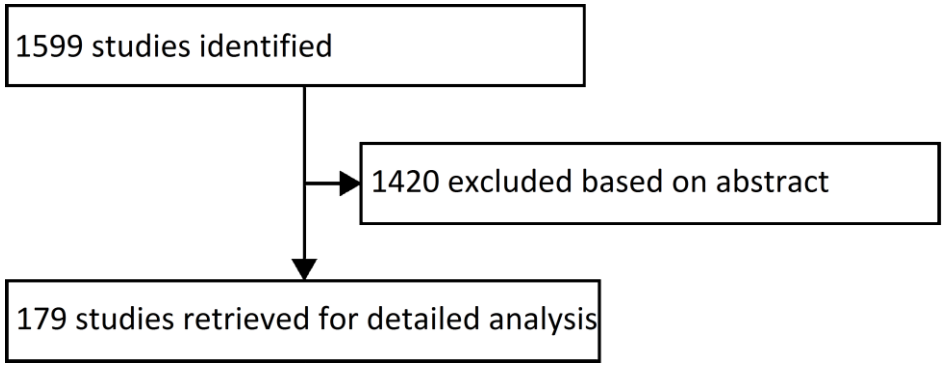

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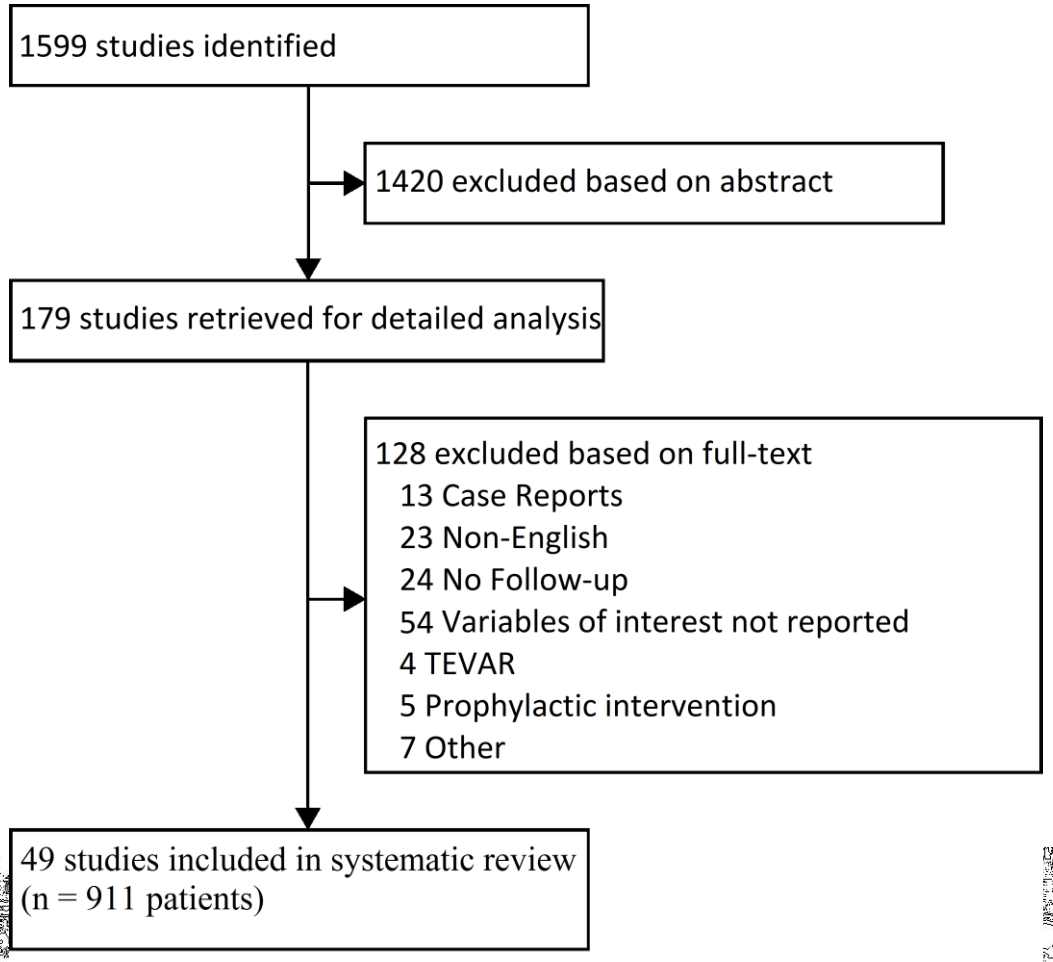
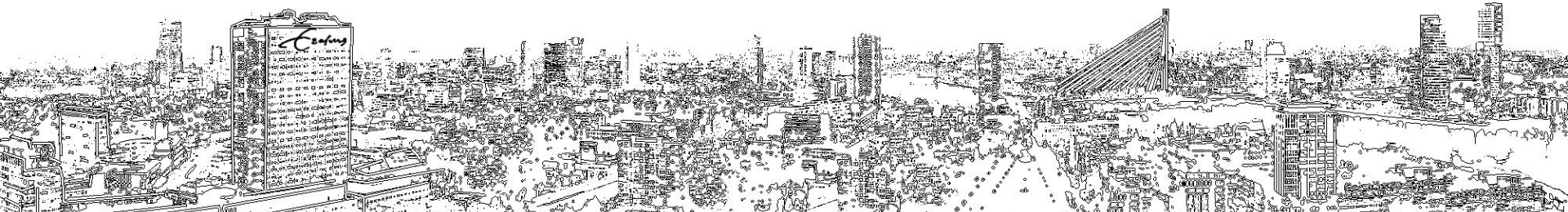


Overall results

- Initial selection: 911 patients.
- Follow-up: 18.5 months (range: 7-50 months)
- Technical success: 89.6% (515 / 575)
- Clinical success: 60.3% (539 / 894)



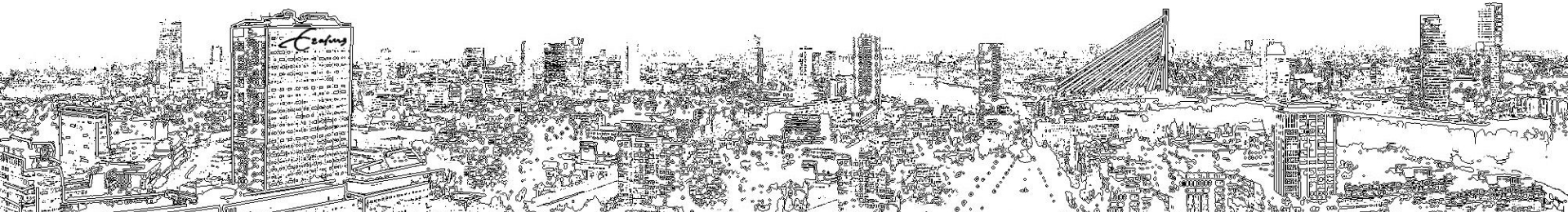
However..

- Huge heterogeneity in:
  - Indication for procedure
  - Follow-up time
  - Definitions of clinical success
    (radiological resolution vs. sac diameter)

Subgroup analysis

- More homogenous with regard to

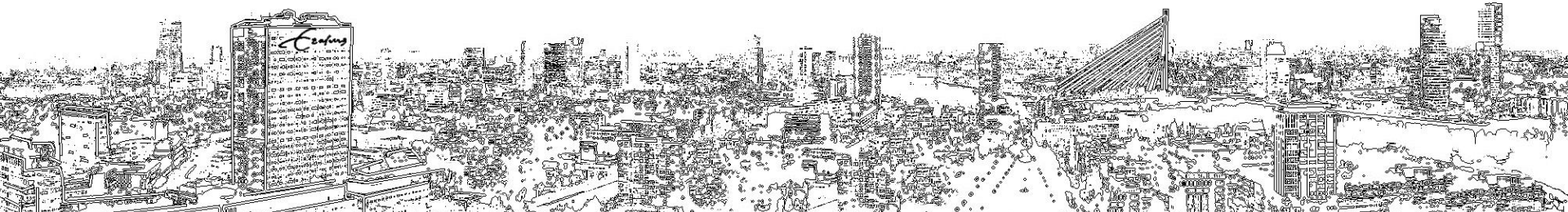
  - Indication for procedure → sac enlargement
  - Sufficient follow-up → >12 months
  - Relevant outcome measures → no sac enlargement



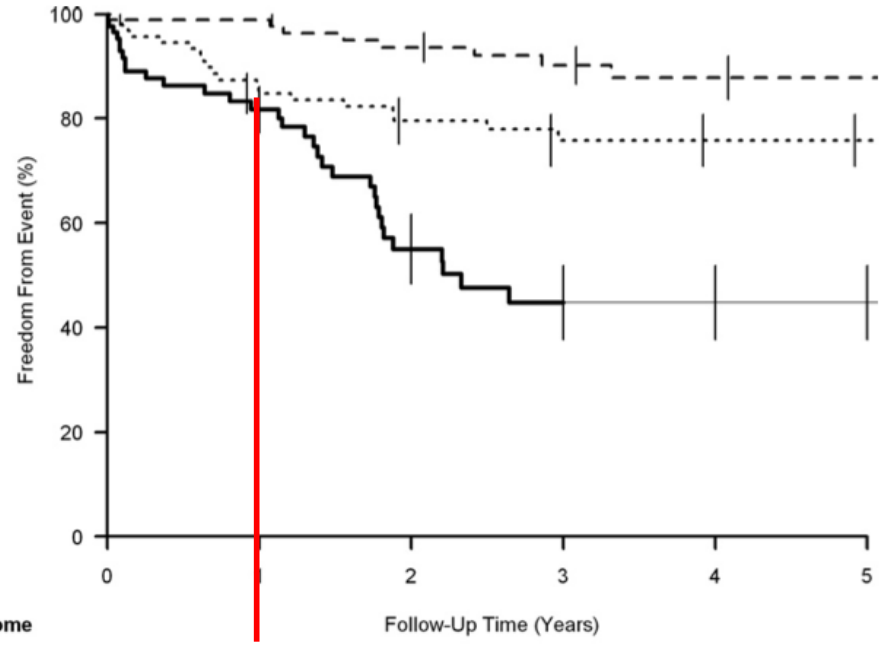
Selected subcohort

- Subcohort: 337 patients.
- Follow-up: 20.2 months (range: 12.0-45.6)
- Technical success: 89.0% (300 / 337)

- **Decrease or stable** sac size: 73.6% (248 / 337)



Longer follow-up is necessary



Outcome						
2nd Repair	95	68	54	35	25	19
Explant	94	79	64	43	29	23
Growth	88	52	25	15	12	9

Sarac et al., J Vasc Surg, 2012

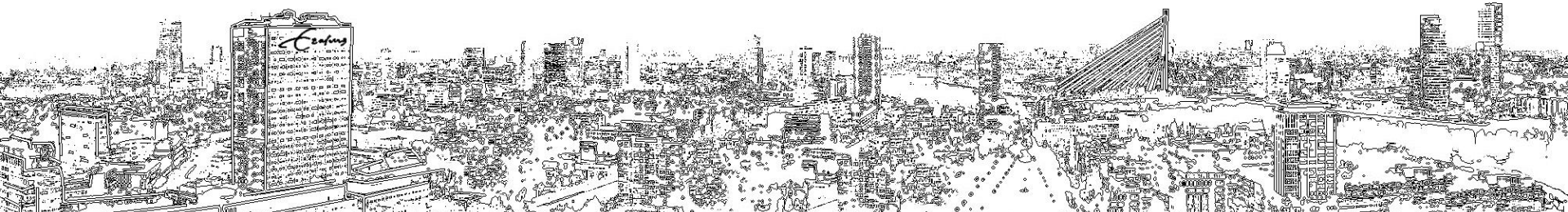
Subgroup analysis

- More homogenous with regard to

  - Indication for procedure → sac enlargement
  - Sufficient follow-up → >24 months
  - Relevant outcome measures → Sac shrinkage

Are we sure?

- 3 studies; 40 patients
- Only 27 patients showed decrease in sac size
- **27 patients** receiving successful treatment ?

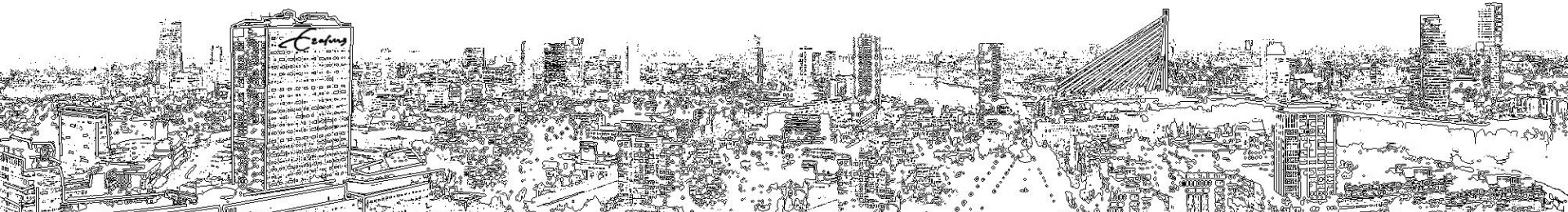


Adverse events

- Adverse events reported
  - Serious complication: 3.0%
  - Secondary re-intervention: 16.2%
  - Conversion: 5.1%
  - Rupture: 1.0 %
  - Intervention-related mortality: 0.5%

Adverse events

- Remember, these numbers far exceed the risk of rupture due to type 2 EL !

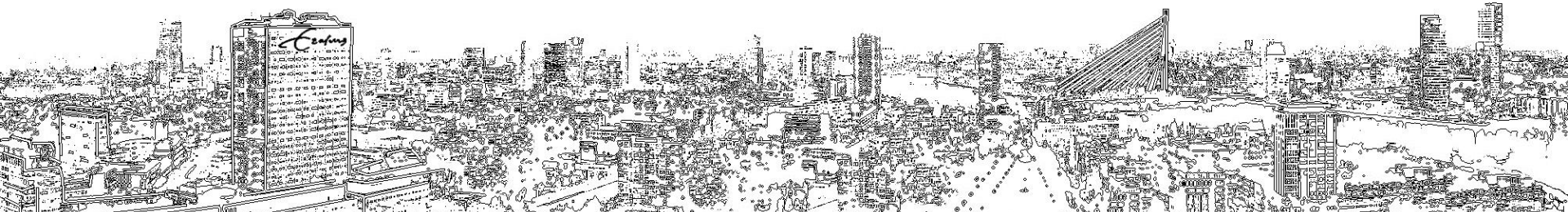


Limitations

- Publication bias:
  - ↑ Success rates
  - ↓ Complication rates

Conclusion

- The danger of type 2 EL seems to be very low
- Treatment is done frequently but even for AAA growth, the scientific evidence for this is exceptionally scarse with:
  - Much heterogeneity in indication & outcomes
  - Limited long-term follow-up
  - Serious publication bias



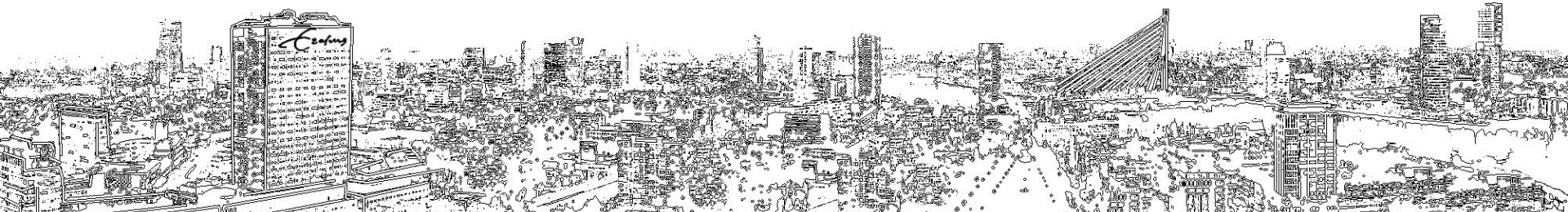
Conclusion

The firm believe of many

The official guideline

To treat type 2 EL in the presence of aneurysm growth is based on .....

27 patients



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Really ?