Meta-analysis: prophylactic drainage and bleeding complications in thyroid surgery
Kennedy SA, Irvine RA, Westerberg BD, Zhang H

CRD summary
This review concluded that there was insufficient evidence to recommend drainage in thyroid surgery and that drains may possibly have increased the risk of reoperation for bleeding. The authors’ conclusions appeared to reflect the evidence, but a lack of details on excluded studies and poor reporting in the review made the reliability of the findings unclear.

Authors’ objectives
To assess the effectiveness of prophylactic drain placement in reducing adverse bleeding events in thyroid surgery.

Searching
MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Database of Systematic Reviews, ACP Journal Club, DARE, PREMEDLINE, OLDMEDLINE, CINAHL, BIOSIS Previews, LILACS, KOREAMED, SAMED, IndMED, SIGLE, ScienceDirect and Ingenta Connect databases were searched up to January 2005. No language restrictions were applied. Reference lists of relevant reviews and identified articles were checked for additional studies. Search terms were reported.

Study selection
Randomised controlled trials (RCTs), prospective observational and cohort studies in patients treated with closed suction drainage, passive gravity drainage and/or no drainage following various forms of thyroid or parathyroid surgery were selected. Primary outcomes of interest were need for reoperation for bleeding and clinically apparent haematoma.

The review did not give details on study and participant characteristics.

Two reviewers independently selected the included studies. Any disagreements were resolved through consensus.

Assessment of study quality
Study quality was assessed based on adequacy of randomisation, reproducibility of inclusion and exclusion criteria, clarity of population demographics and statistical significance of the results.

Two reviewers performed validity assessment independently.

Data extraction
Absolute risks, odds ratios (OR) and associated 95% confidence (CI) intervals of reoperation for bleeding and visible haematoma were extracted by two reviewers independently.

Methods of synthesis
Effect estimates were combined in random-effects meta-analyses.

Results of the review
Eight RCTs (n=907) were included. The number of patients in each study ranged from 60 to 200. Only seven and 59 reoperation for bleeding and visible haematoma events were observed.

There was no statistically significant difference of reoperation for bleeding (OR 1.47, 95% CI 0.26 to 8.28) or visible haematoma (OR 0.88, 95% CI 0.44 to 1.75) between patients who received vacuum drains and those who received no drains after thyroid surgery.

In patients who received vacuum drains, absolute risk of reoperation for bleeding was 1.02 (95% CI 0.05 to 18.1) and for visible haematoma was 2.08 (95% CI 0.19 to 18.7). Absolute risk of reoperation in the no drains group for bleeding...
was 0.69 (95% CI 0.19 to 2.61) and for visible haematoma was 2.36 (95% CI 0.44 to 11.6).

**Authors’ conclusions**

There was insufficient evidence to recommend drainage in thyroid surgery. It was possible that drains may increase the risk of reoperation for bleeding, but data were not statistically significant. If there was a benefit to drainage, absolute risk reductions of bleeding outcomes may not warrant routine use.

**CRD commentary**

The review had a clear research question and was supported by well-defined inclusion criteria. The literature search appeared to be adequate with several sources searched. There were no language restrictions applied, which minimised risk of language bias. The authors appeared to include only full-text articles, which may have introduced publication bias. There were adequate steps to minimise errors and bias during the process by two reviewers independently selecting the included studies and extracting data. The authors stated that some studies that met review inclusion criteria were excluded because of either insufficient quality or clinical heterogeneity, yet there were no intervention details and the quality assessment results were not reported for these studies. Hence, reliability of included studies could not be assessed. Given a lack of data reported on statistical heterogeneity, it was not possible to comment on the appropriateness of method of synthesis. The authors’ conclusions appeared to reflect the data presented, but the drawbacks mentioned above meant that the reliability of the conclusions could not be assessed.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** Clinical studies that evaluated effects of drainage in thyroid surgery were likely to require a large number of patients because of small differences in absolute risk.

**Funding**

Not stated.

**Bibliographic details**


**PubMedID**

19128701

**DOI**

10.2310/7070.2008.060088

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Drainage; Humans; Postoperative Care; Postoperative Hemorrhage /etiologic /prevention & control; Thyroid Gland /surgery; Treatment Outcome

**AccessionNumber**

12009105381

**Date bibliographic record published**

10/03/2010

**Date abstract record published**

16/06/2010
Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.