

# How Safe is Lipiodol Hysterosalpingography?

Jennifer Yang<sup>1,2</sup>, Michael Chapman<sup>1,2,3</sup>

1. School of Clinical Medicine, UNSW Sydney, Australia

2. Department of Women's and Children's Health, St George Hospital, Sydney, Australia

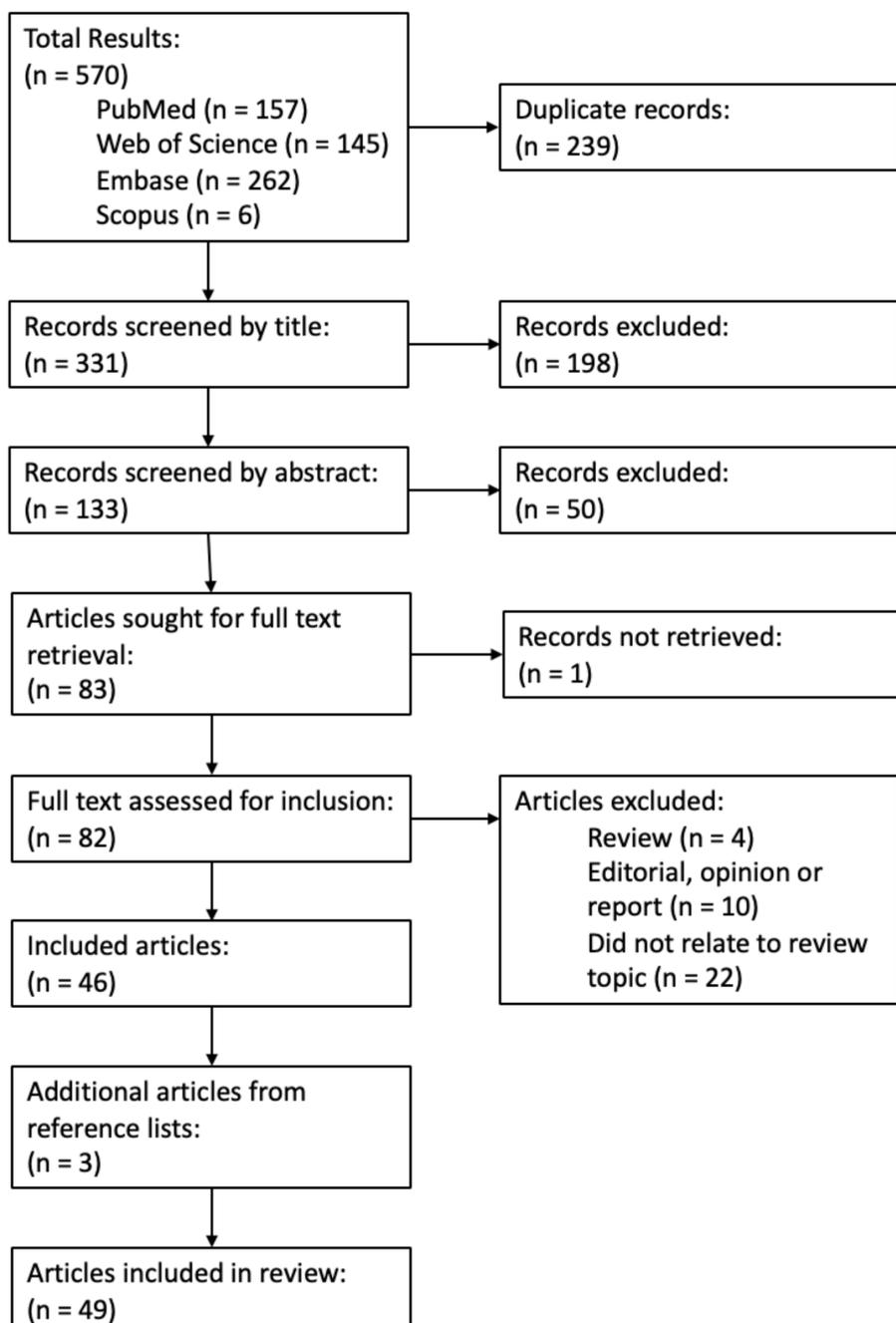
3. IVF Australia, St George Private Hospital, Sydney, Australia

## Background & Aim

Hysterosalpingography is widely used as a first-line investigation for infertility, and may also be therapeutic, increasing pregnancy rates. Aqueous and oil-based contrast agents can be used. Some studies suggest Lipiodol hysterosalpingography has a greater therapeutic effect on fertility than aqueous contrast, though this is contentious. There are additionally safety concerns surrounding Lipiodol hysterosalpingography. The aim was thus to review the adverse effects associated with Lipiodol hysterosalpingography, particularly on thyroid function.

## Methods & Results

A literature search was conducted using the PubMed, EMBASE, Web of Science, and Scopus databases, with variations of the keywords "Lipiodol" or "ethiodol" or "iodised oil" or "poppyseed oil" and "hysterosalpingography" or "flush" or "infertility" or "tubal" or "fallopian". Reference lists of included articles were reviewed for additional articles.



## Discussion

### Pain

- Most frequently reported adverse effect
- 20.6-93.9% of patients<sup>1,2</sup>
- However, may be more tolerable than aqueous contrasts for hysterosalpingography

### Intravasation

- Rare, 0.4%-13.0%<sup>3,4</sup>
- Venous intravasation carries the risk of oil emboli
- Can lead to pulmonary oil embolism
- Case reports of cerebral and retinal emboli

### Lipogranuloma

- Rare, 0.1-12.5%<sup>5,6</sup>
- Occurs due to Lipiodol's poor absorption and retention in the pelvis → chronic inflammation → soft tissue granulomatous mass
- Does not occur with aqueous contrasts

### Thyroid Function

- Lipiodol's high iodine content and retention in the body has led to concerns that it may cause abnormal thyroid function in women post-hysterosalpingography<sup>7</sup>
- Hypothyroidism could occur via Wolff–Chaikoff effect<sup>8</sup>
- Hyperthyroidism via Jod-Basedow phenomenon<sup>9</sup>
- Possible effect on neonatal thyroid function (unclear)<sup>10</sup>

## Conclusion

Several adverse effects that may be associated with Lipiodol HSG, including potentially life-threatening complications. Of note, there is emerging evidence of its impact on maternal and possibly neonatal thyroid function. Given the significance of these risks, careful consideration is required in the selection of contrast agent for HSG. In particular, Lipiodol HSG may not be suitable for women with pre-existing thyroid dysfunction, in whom aqueous contrast agents should be utilised instead.

## References

1. Li H, et al. 2022, *Front Med (Lausanne)*. 9:804494.
2. Tan Y, et al. 2019. *BMC Med Imaging*. 19(1):50.
3. Geary, W.L., et al., 1969. *Am J Obstet Gynecol*, 104(5):687-92
4. Alper MM, et al. 1986. *Obstet Gynecol*. 68(1):6-9.
5. Cron RS. 1965. *Aust N Z J Obstet Gynaecol*. 5(1):12-7.
6. Brown WE, Jennings AF, Bradbury JT. 1949. *AJOG*. 58(6):1041-53.
7. Peart JM, Sim R. 2020. *J Med Imaging Radiat Oncol*. 64(4):516-21.
8. Markou K, et al. 2001. *Thyroid*. 11(5):501-10.
9. Paul D, et al. *CMAJ*. 2013;185(2):144.
10. Satoh M, Aso K, Katagiri Y. 2015. *Horm Res Paediatr*. 84(6):370-5