# Comparative Analysis of the Effectiveness of 5-Fluororacil Solution VS Modified Carnoy's Solution in Mitigating the Recurrent Odontogenic Keratocyte: A Scoping Review

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## Abstract:

Controversy persists in determining the optimal therapeutic approach for odontogenic keratocysts (OKCs) due to their aggressive nature and high recurrence rates. Adjunctive therapies, particularly Modified Carnoy's Solution (MCS) and 5-Fluorouracil (5-FU), have been widely debated regarding their efficacy in reducing recurrence rates. This scoping review aims to systematically explore and compare the effectiveness of 5-Fluorouracil (5-FU) Solution versus Modified Carnoy's Solution in mitigating the recurrence of odontogenic keratocysts (OKCs). This review will map out existing research on both treatment modalities, assess their recurrence prevention rate and long-term outcomes, and help clinicians make evidence-based decisions regarding suitable adjuvant treatment. A comprehensive search of the electronic database, Scopus, and Google Scholar followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) criteria. The search string used was: (odontogenic keratocyst OR OKC) AND (5-fluorouracil) AND (Carnoy's) AND (anti-metabolite). A total of 10 studies were selected from 3.825 based on the inclusion and exclusion criteria. Our findings show that, following enucleation or peripheral osteotomy surgery, individuals treated with 5% 5-fluorouracil did not experience an odontogenic keratocyst recurrence throughout an 84-month follow-up period. On the other hand, patients receiving MCS treatment had recurrence rates of 27% for enucleation and peripheral osteotomy and 23.1% for enucleation alone; on average, recurrences happened during the first year of follow-up. Lesions were most discovered among the 204 sites in this investigation in the mandible, specifically the ramus and mandibular body. 5-FU is highly effective in preventing OKC recurrence; however, MCS appears less compelling. Further research should focus on long-term studies and molecular strategies to refine the use of adjunctive therapies in OKC management, particularly for high-risk patients.

## Keywords:

Odontogenic keratocyst, OKC, 5-Fluorouracil, Carnoy's, Anti-metabolite.