# The Role Of Non-Echoplanar Diffusion-Weighted Magnetic Resonance Imaging & Apparent Diffusion Coefficient In Diagnosis Of Primary Cholesteatoma And Cholesteatoma Recidivism

**Thesis Protocol**
Submitted in Partial Fulfillment of
The MD Degree of
**Radiodiagnosis**

By

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**A protocol of thesis submitted in partial fulfillment of the MD degree in Radiodiagnosis**

**Department of radiodiagnosis**
**Faculty of Medicine**
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# Abstract

- **Background:** Cholesteatoma is a serious otolaryngologic condition that requires surgical intervention for diagnosis and treatment. Event after excision a second look surgery is often required to ensure disease eradication and exclude any residual disease. Definite diagnosis of cholesteatoma up to date depends on surgical exploration; the potential of a non-invasive diagnostic modality for diagnosis of cholesteatoma could greatly impact diagnosis. Since the development of non-echoplanar diffusion weighted MRI it proved itself as a potential candidate for such diagnostic modality providing high sensitivity and specificity. The aim of this study is to assess non-echoplanar diffusion weighted MRI in detection of primary cholesteatoma and cholesteatoma recidivism and to evaluate the potential capability of Diffusion weighted MRI as a replacement for second look surgeries. Patients and Methods: fifty three patients with suspected primary cholesteatoma or residual/recurrent cholesteatoma planned for second look surgeries were subjected to clinical examination and diffusion weighted MRI, findings were compared with operative/ microscopic examination findings. Results: non-echoplanar diffusion weighted MRI yielded (86.3%) sensitivity, (100%) specificity, (100%) positive predictive value, (86.3%) negative predictive value, and (92.6%) diagnostic accuracy regarding diagnosis of primary cholesteatoma; while it achieved (100%) sensitivity, (100%) specificity, (100%) positive predictive value, (100%) negative predictive value regarding detection/exclusion of residual/ recurrent cholesteatoma disease. Conclusion: non-echoplanar diffusion weighted MRI shows very good diagnostic performance in detection of primary cholesteatoma and cholesteatoma recidivism and with few technical and clinical considerations it could successfully reduce the number of replace needed second look surgeries.

**Key words:** Cholesteatoma, non-echoplanar diffusion, ADC.