

Stereotactic biopsy complications



The most frequent [complication](#) after [stereotactic biopsy](#) is [hemorrhage](#), although most are too small to have a clinical impact. The risk of a major complication (mostly due to hemorrhage) in nonimmunocompromised (NIC) patients ranges from 0–3% (with most < 1%), and 0–12% in [AIDS](#) ¹⁾

Higher complication rates seen in [AIDS](#) patients in some series may be due to reduced [platelet](#) count or function, and to vessel fragility in primary CNS [lymphoma](#). In NIC patients, multifocal [high-grade gliomas](#) had the highest complication rate. [Infection](#) is an infrequent complication with a [needle biopsy](#).

About 132 articles were found after research in the Medline database. Riche et al. only considered English references published between 1994 and June 2019. Additional studies were found by using the references from articles identified in the original search. This [systematic review](#) was conducted according to [PRISMA guidelines](#). After applying [exclusion criteria](#), they eventually considered 25 relevant studies. The mortality rate varies from 0.7 to 4%. Overall [morbidity](#) ranges from 3 to 13%. Most of the complications are revealed by the following symptoms: neurological [impairment](#) (transient or permanent), [seizure](#), and [unconsciousness](#). Symptomatic hemorrhage range varies from 0.9 to 8.6%, whereas considering asymptomatic bleeding, the range may be up to 59.8%. [Complications](#) were clinically evident within minutes to a few hours after the biopsy. Corrective surgeries are very rare (< 1%). Complications occurring after a frame-based stereotactic brain biopsy are rare but with serious side effects. It rarely leads to death or to permanent neurological impairment. The description and classification of complications are often heterogeneous in the literature. The use of a grading scale could help comparisons between series from around the world. Future studies should establish a score that allows neurosurgeon to predict post-biopsy complications ²⁾.

Negative biopsy

Insufficient yield in up to 5% as well as surgical complications in up to 6 to 12% has been reported ^{3) 4) 5) 6) 7)}

Livermore et al., advocate intra-operative histopathological analysis to decrease negative biopsy rates and advise increased caution when undertaking biopsies of deep lesions or suspected lymphoma cases due to the potentially increased risk of hemorrhage ⁸⁾.

Hemorrhage

see [Hemorrhage after Stereotactic brain biopsy](#).

References

1)

Nicolato A, Gerosa M, Piovan E, et al. Computerized Tomography and Magnetic Resonance Guided Stereotactic Brain Biopsy in Nonimmunocompromised and AIDS Patients. Surg Neurol. 1997; 48: 267-277

2)

Riche M, Amelot A, Peyre M, Capelle L, Carpentier A, Mathon B. Complications after frame-based stereotactic brain biopsy: a systematic review. Neurosurg Rev. 2020 Jan 4. doi: 10.1007/s10143-019-01234-w. [Epub ahead of print] Review. PubMed PMID: 31900737.

3)

Dammers R, Haitsma IK, Schouten JW, Kros JM, Avezaat CJ, Vincent AJ. Safety and efficacy of frameless and frame-based intracranial biopsy techniques. Acta Neurochir (Wien). 2008;150(1):23-29.

4)

Hall WA. The safety and efficacy of stereotactic biopsy for intracranial lesions. Cancer. 1998;82(9):1749-1755.

5)

Lu Y, Yeung C, Radmanesh A, Wiemann R, Black PM, Golby AJ. Comparative effectiveness of frame-based, frameless, and intraoperative magnetic resonance imaging-guided brain biopsy techniques. World Neurosurg. 2015;83(3):261-268.

6)

Malone H, Yang J, Hershman DL, Wright JD, Bruce JN, Neugut AI. Complications following stereotactic needle biopsy of intracranial tumors. World Neurosurg. 2015;84(4):1084-1089.

7)

Dammers R, Schouten JW, Haitsma IK, Vincent AJ, Kros JM, Dirven CM. Towards improving the safety and diagnostic yield of stereotactic biopsy in a single centre. Acta Neurochir. 2010;152(11):1915-1921.

8)

Livermore LJ, Ma R, Bojanic S, Pereira EA. Yield and complications of frame-based and frameless stereotactic brain biopsy - The value of intra-operative histological analysis. Br J Neurosurg. 2014 Feb 25. [Epub ahead of print] PubMed PMID: 24568533.

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