HUBUNGAN ANTARA HIPEROSTOSIS PERITUMORAL MENINGIOMA INTRAKRANIAL PADA CT SCAN DENGAN DERAJAT MALIGNANSI

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INTISARI

LATAR BELAKANG: Meningioma merupakan tumor intrakranial non-glial primer yang kerap kita temui dalam praktik sehari-hari. Tumor ini dapat menyebabkan perubahan hiperostotik. Sampai saat ini, bagaimana meningioma memengaruhi jalur metabolisme yang terlibat dalam osteolisis atau osteosintesis masih belum jelas. Beberapa penelitian telah meneliti peran matriks metalloprotease dalam osteolisis, dan tidak ada mekanisme jelas di balik perubahan hiperostotik yang telah dijelaskan. Beberapa peneliti mendukung infiltrasi tulang oleh sel tumor menyebabkan perubahan sekunder pada aktivitas osteoblas dan osteoklas yang menyebabkan peningkatan deposisi tulang. Penelitian ini akan meneliti hubungan antara hiperostosis peritumoral meningioma intrakranial pada CT scan dengan derajat malignansi.

TUJUAN: Mengetahui adakah hubungan antara hiperostosis peritumoral meningioma intrakranial pada CT scan dengan derajat malignansi

METODE: Penelitian kuantitatif inferensial korelasional dengan data sekunder berupa hiperostosis peritumoral meningioma intrakranial pada CT scan dan derajat malignansi yang kemudian dianalisis dengan uji hipotesis non-parametrik. Pengumpulan data dilakukan dengan mengakses data pasien melalui SIMETRISS, kemudian sampel dipilih dengan metode *nonprobability sampling* yaitu *consecutive sampling*. Dilakukan validasi data dengan dua dokter spesialis radiologi dengan pengalaman bekerja lebih dari 1 tahun.

HASIL: Berdasarkan alur rekrutmen, didapatkan 119 pasien sebagai sampel penelitian. Jenis kelamin *(p=0,034)*, kalsifikasi intratumoral *(p=0,032)*, dan homogenitas tumor *(p=0,022)* memiliki perbedaan proporsi signifikan dengan derajat malignansi *(p<α, α=0,05)*, sementara kelompok umur *(p=0,375)*, hiperostosis peritumoral *(p=0,073)*, densitas tumor *(p=0,827)*, dan edema perifokal *(p=0,104)* tidak terdapat perbedaan proporsi signifikan *(p>α, α=0,05)*. Tidak adanya hiperostosis, bagaimanapun, tidak mengesampingkan invasi tumor. Akibatnya, meskipun penelitian ini awalnya memprediksi bahwa temuan pencitraan pra operasi hiperostosis bisa menjadi prediktor derajat malignansi meningioma intrakranial, invasi tumor ke dalam tulang dan risiko kekambuhan tumor pasca operasi berikutnya apabila reseksi bedah tidak sempurna, masih dapat terjadi

KESIMPULAN: Penelitian ini menunjukkan bahwa tidak terdapat perbedaan proporsi signifikan antara hiperostosis peritumoral meningioma intrakranial dengan derajat malignansi. Hiperostosis dapat terlihat pada meningioma intrakranial derajat rendah maupun tinggi serta tidak memiliki kecenderungan untuk lebih sering muncul pada derajat malignansi tertentu. Maka dari itu, dapat kita simpulkan bahwa hiperostosis tidak dapat menjadi prediktor derajat malignansi meningioma intrakranial.

KATA KUNCI: hiperostosis, meningioma, intrakranial, CT scan, derajat malignansi

CORRELATION BETWEEN INTRACRANIAL MENINGIOMA PERITUMORAL HYPEROSTOSIS ON CT SCAN WITH MALIGNANCY GRADE

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ABSTRACT

BACKGROUND: Meningioma is a primary non-glial intracranial tumor that we often encounter in daily practice. These tumors can cause hyperostotic changes. Until now, how meningioma affects the metabolic pathways involved in osteolysis or osteosynthesis is unclear. Several studies have investigated the role of matrix metalloproteases in osteolysis, and no clear mechanism behind the hyperostotic changes has been elucidated. Some investigators support bone infiltration by tumor cells causing secondary changes in osteoblast and osteoclast activity leading to increased bone deposition. This study will examine the relationship between intracranial peritumoral meningioma hyperostosis on CT scan with the degree of malignancy.

OBJECTIVE: To determine whether there is a relationship between meningioma intracranial peritumoral hyperostosis on CT scan with the degree of malignancy

METHOD: Correlational inferential quantitative study with secondary data in the form of intracranial meningioma peritumoral hyperostosis on CT scan and the degree of malignancy which was then analyzed by means of a non-parametric hypothesis test. Data collection was carried out by accessing patient data through SIMETRISS, then the sample was selected using the non-probability sampling method, namely consecutive sampling. Data validation was carried out with two radiologists with more than 1 year of working experience.

RESULTS: Based on the recruitment flow, 119 patients were found as the study sample. Gender ($p=0.034$), intratumoral calcification ($p=0.032$), and tumor homogeneity ($p=0.022$) had a significant proportion difference with the degree of malignancy ($p<\alpha$, $\alpha=0.05$), while the age group ($p=0.375$), peritumoral hyperostosis ($p=0.073$), tumor density ($p=0.827$), and perifocal edema ($p=0.104$) there were no significant differences in proportion ($p>\alpha$, $\alpha=0.05$). The absence of hyperostosis, however, does not rule out tumor invasion. Consequently, although this study initially predicted that preoperative imaging findings of hyperostosis could be a predictor of the degree of malignancy of intracranial meningioma, invasion of the tumor into the bone and risk of subsequent postoperative tumor recurrence if surgical resection is incomplete, may still occur.

CONCLUSION: This study shows that there is no significant proportion difference between peritumoral meningioma intracranial hyperostosis and the degree of malignancy. Hyperostosis can be seen in both low-grade and high-grade intracranial meningioma and does not tend to occur more frequently with any degree of malignancy. Therefore, we can conclude that hyperostosis cannot be a predictor of the degree of intracranial meningioma malignancy.

KEYWORDS: hyperostosis, meningioma, intracranial, CT scan, malignancy grade