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Taurin upregulated gene 1 functions as a master regulator to coordinate glycolysis and metastasis in hepatocellular carcinoma

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Cancer cells exhibit altered glucose metabolism characterized by a preference for aerobic glycolysis. The aerobic glycolytic phenotype of hepatocellular carcinoma (HCC) is often correlated with tumor progression and poorer clinical outcomes. However, the issue of whether glycolytic metabolism influences metastasis in HCC remains unclear. In the current study, we showed that knockdown of Taurin upregulated gene 1 (TUG1) induces marked inhibition of cell migration, invasion and glycolysis via suppression of miR-455-3p. MiR-455-3p, which is transcriptionally repressed by p21, directly targets the 3'-untranslated region (UTR) of AMP-activated protein kinase subunit beta 2 (AMPKβ2). The TUG1/miR-455-3p/AMPKβ2 axis regulates cell growth, metastasis and glycolysis through activation of Hexokinase 2 (HK2). TUG1 is clearly associated with HK2 overexpression and unfavorable prognosis in HCC patients. Our data collectively highlight that novel regulatory associations among TUG1, miR-455-3p, AMPKβ2 and HK2 are an important determinant of glycolytic metabolism and metastasis in HCC cells and support the potential utility of targeting TUG1/HK2 as a therapeutic strategy for HCC.

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When oncology 'met' the cutis

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Introduction: Gynaecological malignancies account for 25% of all new cancers diagnosed among women up to 65 years in India, the most common being carcinomas of cervix, breast and ovary. Cutaneous metastasis are commonly noted in breast malignancies (23.9%) but are rarely reported in genital malignancies (0.88%). Ambiguity still prevails over their patho-mechanism. We report six unusual presentations of cutaneous metastasis in a setting of primary gynaecological malignancy.

Cases: Case1 is a 45 years old, with carcinoma ovary with multiple papulonodular lesions in a zosteriform pattern below umbilicus; Case 2 is a 52 year old with vulvar carcinoma with multiple papulonodules around surgical incision site; Case 3 include a 31 year old with solitary ulcerated nodule overlying the transverse surgical incision site over the abdomen; Case 4 is a 63 year old with cervical carcinoma with vulvar ulcerated plaques; Case 5 is a 64 year old with carcinoma breast with solitary erythematous papule on the right infraclavicular area and; Case 6 is a 47 year old with carcinoma breast with multiple popular lesions in a zosteriform pattern around the site of incision for mastectomy.

Conclusion: a) Cutaneous metastasis is an essential marker for prognosis in gynecologic malignancy. Earlier the time interval between diagnosis of gynecological malignancy and occurrence of skin metastasis worse will be the prognosis. b) Emphasis on regular breast and genital examination in clinical practice is needed. Consider a diagnosis of cutaneous metastasis while evaluating papulonodular lesions occurring in a setting of an occult malignancy. c) Therapeutic port access sites metastasis are often missed as these are usually deep seated lesions which are better palpable than seen. This case series shows various manifestations of cutaneous metastasis in gynaecologic malignancies.

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