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Letter to Editor

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Cancer cell seeding following manipulation: an ancient concern according to the traditional iranian medicine

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Letter to editor

Dear Editor,

Cancer diagnosis is a rapidly growing subject in both basic and clinical fields of research. New imaging systems, molecular diagnosis methods such as analysis of circulating markers.[1,2] as well as risk assessment approaches like genetic tests.[3] are examples of advanced non-invasive diagnostic tools. Nevertheless, invasive methods remain to be more acceptable by physicians and even the patients.[4,5] Despite the great progression in non-invasive diagnostic methods, tissue biopsy is still the most reliable and accurate diagnostic tool when selection of right treatment strategy is concerned. There are three main biopsy methods:

1. Fine Needle Aspiration Biopsy (FNAB),
2. Core Needle Biopsy (CNB) and
3. Surgical Biopsy.

FNAB is performed by insertion of a needle (gauge 26-21) that is attached to a syringe pistol into the lesion and aspiration of sufficient amounts of cellular material. FNAB works better for loose tissues such as thyroid while is less effective in more dense tissues.[6] CNB is done with advantage of a thicker needle (up to 3 mm or more) which is inserted into the lesion with aid of local anesthesia. When arriving to the right place, the core needle is shot into the lesion and a cylindrical specimen is obtained.[7] This process might be done with or without assistance of imaging systems like ultra sound and MRI. Surgical (also open) biopsy is defined as partial (i.e. incisional) or complete (i.e. excisional) removal of the suspicious lesion. But the question raised here is that whether procedures utilized to obtain a biopsy specimen might hurt the patient? To address this question we first have to know the possible effects that a biopsy method might have on cancerous tissues. While in FNAB smallest damage is caused and in surgical excisional biopsy the whole lesion is removed, in CNB the thick needle is inserted into the lesion and might result into inflammatory response in tumor tissue. Virtually, this inflammatory reactions may facilitate other tissue injuries like tumor dis-integrity, vessel tearing, needle associated tissue movement, etc.[8] The data on possible risks associated with needle biopsy are controversial. It is reported that macrophages repolarize from an M1 type toward tumor promoting M2 type after a tumor biopsy might accelerate tumor progression.[9] Several studies suggest that FNA can rarely cause needle track seeding or cutaneous metastasis at Biopsy Site in renal, pancreatic and hepatic (primary or metastatic) cancers.[9-11] As well, a few cases of breast cancer with the same complication after CNB have been reported.[12,13] There are also studies implying that procedures like prostate biopsy or surgical removal of the tumor during a colonoscopy (in colorectal cancer) may increase the number of circulating tumor cells (CTCs) in the blood in some cases.[14,15] Likewise, animal model studies in mice indicate that a biopsy of the breast tumor might increase the number of CTCs or risk of distant metastasis.[16,17] As well other manipulations such as pressure and laser treatment can increase the number of CTCs in nude mice with breast cancer.[18,19]

Collectively these data suggest that while distant or even needle track metastasis after different types of biopsy in human cancers is a very rare complication, mouse animal models of cancer show a much higher rate of metastasis after biopsy of the tumor.

These debates on getting biopsy from cancerous tissue, dates back to the ancient times. Avicenna (980-1037 A.D.), one of the most outstanding medical scientists ever.[20] in his famous book, Cannon of medicine, insists that the cancerous tissue should not be manipulated. He recommends that during excisional surgery of the tumor, all affected tissue around the tumor should be excised completely and excessive bleeding should be allowed to clean the site from any suspicious cell.[21] Other Persian medicine pioneers like Seyed Esmail Jorjani (1042-1137 A.D.) and Hakeem Azam Khan (1211–1320 A.D.) also believe that the best cancer treatment methods are life style modification besides nutrition and drug prescription. They emphasize to care the cancerous tissue in a way it wouldn't be injured and avoid using blade unless necessary; as any manipulation is assumed to decrease the patient's life expectancy.[22]

Eventually, although there is a very slight risk of distant metastasis following tumor biopsy, it is recommended to conduct larger studies on safety concerns arise from such methods.

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None

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Conflicts of interest

The author declares that there are no conflicts of interest.

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