

Comparative Study of Histopathological Techniques for Detecting Early Signs of Melanoma in High-Risk Groups

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ABSTRACT

Early identification of melanoma is vital, mainly for high-risk entities such as those with fair skin, a large number of nevi, a family history of melanoma, or a history of prolonged sun exposure. The use of histopathological methods to examine skin tissue samples for malignant alterations is crucial in diagnosing melanoma. The primary procedures used in the early diagnosis of melanoma are described in this publication. These methods include punch, shave, incisional, and excisional biopsies and basic cellular examination using haematoxylin and eosin (H&E) staining. The functions of advanced immunohistochemical markers in detecting atypical melanocytes and determining tumour aggressiveness are emphasized. These markers include S-100, HMB-45, Melan-A, and Ki-67. Furthermore, the use of molecular methods such as comparative genomic hybridisation (CGH), next-generation sequencing (NGS), and fluorescence in situ hybridisation (FISH) in identifying chromosomal and genetic abnormalities typical of melanoma is examined. In summary, early identification of melanoma is essential for enhancing patient outcomes and survival rates, especially in high-risk populations. Histopathological methods remain the gold standard for diagnosing melanoma because they offer precise staging and prognosis through in-depth cellular and molecular insights. There is great potential for increasing early detection and diagnostic precision through AI-based image analysis and digital pathology. The best method for detecting melanoma in its early stages is to combine regular monitoring with these cutting-edge histological methods. This will increase the probability of a favourable outcome and lower mortality in high-risk groups.

Keywords: Histopathological Techniques (HPT), Detecting Early Signs (DES), Melanoma (M), High-Risk Groups (HRG)

INTRODUCTION

The word melanoma refers to a specific type of skin cancer that has been increasing day by day. This type of cancer arises in melanocytes, cells responsible for pigmentation in the skin. Although this type of skin cancer is not common and accounts for only one percent of total skin cancer cases, it has been proven a deadly and fatal form of skin cancer these days. The early detection of this type of skin cancer is mandatory for swift treatment. Histopathological Techniques are mostly used for early detection of signs of melanoma. In this introduction, we will discuss how Histopathological Techniques are useful for early diagnosis of melanoma[1]. There are many Histopathological Techniques; some are primitive, and some are advanced Techniques that can be used for the early detection of melanoma before its symptoms. The first and foremost Histopathological Technique is the Hematoxylin and Eosin staining technique. Although this is a primitive Technique, it is widely used for the study of tissue morphology. As we know, the morphology of tissues changes abruptly because of repetitive and uncontrolled cell divisions. This technique uses such staining methods that stain the nucleus and cytoplasm in different colors. Hematoxylin stains the nucleus in a purple color, but eosin stains the cytoplasm in a reddish color[2]. This histopathological technique has many advantages, such as its cost-effectiveness in the early diagnosis of melanoma. The other benefit is that it is simple and easy to perform with a high chance of accurate results. The other benefit of this Histopathological Technique is that it is easily available and can provide quick results. The other important benefit of this Histopathological Technique is that it can provide effective and useful information about the morphology of tissues. The other important Histopathological Technique for Early diagnosis of melanoma is immunohistochemistry for melanoma Markers [3].

This is an important histopathological technique that is used to identify proteins in tissues. This technique can be effectively used to distinguish between melanoma tumours and other tumours based on the presence of specific proteins. There is a specific protein named Melan A that is only present in melanoma tumors and not in any other kind of tumor. There is also the presence of tyrosinase enzyme involved in the production of melanin in the body so involved in melanoma[4]. The other important biomarker in the case of melanoma is PAX3, which is involved in the development of melanocytes. This Histopathological Technique has many advantages, such as high sensitivity and specificity. This technique is also beneficial because it can easily distinguish between melanoma and other tumours. The other benefit of this Histopathological Technique is that it helps identify metastatic melanoma. This technique has the advantage of providing information related to the morphology of tissues. The other important Histopathological Technique for Early diagnosis of Signs of Melanoma is melanin bleaching, a traditional technique. This technique is mostly based on removing melanin from tissues for better visualization of the morphology of tissues[5]. This technique is also based on staining melanin in cells to remove it. There are also some advantages of this technique. The first advantage is that it can easily differentiate between melanin and other pigments. The other advantage is that it is easy to perform in the laboratory. However, there are also some limitations to this technique. The first limitation of this technique is that it may alter tissues' true and accurate morphology [6]. The other limitation is that bleaching is required at specific times and concentrations. The other important limitation of this Histopathological Technique is that it may not be able to remove all the melanin from cells. The other advanced Histopathological

Technique is digital image analysis for morphometric and texture analysis in melanoma. It is a digital and advanced form of technique that can be used to perform an analysis of digital images of melanoma tissues[7]. This technique is helpful in diagnosis because when images are analyzed deeply, it can provide versatile information about the texture, structure, size, and composition of cells in melanoma tissues. The accurate thickness of melanoma tumours and mitotic rate in these tumours can be easily analyzed. There are a few important steps in this Histopathological Technique. The first step is a whole slide imaging for diagnosis. The next step is the preprocessing of these images. The next step is segmentation to identify cells and their components. The next step is feature extraction, which explains the texture, structure, composition, size, and other important features of cells[8]. The final step of digital image analysis for morphometric and texture analysis in melanoma tumours is the conclusion of this analysis. As with other histopathological techniques, this technique also has many advantages. The first and foremost benefit is that it can provide objective results in a very short period. The next benefit is that it is an advanced Histopathological Technique; thus, it can provide more accurate results relevant to the diagnosis of melanoma. The other important advantage is that it is mostly automated, so there is very little risk of human error. The other important Histopathological Technique for Early diagnosis of Signs of Melanoma is the Next-generation sequence for genetic analysis. This technique is used to diagnose melanoma just before the onset of any kind of mutation in cells[9]. This technique is reliable because it can detect a possible risk of mutation in the next generation of cells before any cell division. It is the most advanced histopathological technique, which provides accurate and swift diagnoses. Some important benefits of this technique are mentioned. The first benefit is that it can be used to detect mutation. The other important benefit is that it can be used to analyse gene expression in the next generation. Along with this, there are also many other benefits of this Histopathological Technique as well[10].

Research Objective

The main objective of this research is to understand Histopathological Techniques for Detecting Early Signs of Melanoma. This study has effectively explained some primitive and advanced Histopathological Techniques that are useful for diagnosing melanoma.

LITERATURE REVIEW

Researchers claim that skin cancer is termed melanoma, and its spread is severely rising around the world. The causes of death due to melanoma are increasing daily. The high mortality rate associated with melanoma makes it difficult to control the disease in Bangladesh and other nearby countries[11]. Studies suggest that patients who are at higher risk of melanoma are diagnosed using digital Dermo copy. However, studies reveal that the effectiveness of digital dermo copy is greater in patients with low severe symptoms of melanoma[12]. Studies show that melanoma has various types categorized by thickening or thinning of skin. Dermoscopy is an initial diagnostic technique for thin melanoma identification. The dermoscopy detects the colour as well as a pattern of structures on the skin due to melanoma [13]. Most of scholars' studies claim that early detection of melanoma reduces its high prevalent rate in people. This deadly skin cancer often requires a lot of clinical efforts to tackle the complexity of

this medical disease. The first stage in the treatment of melanoma is to detect its presence. The melanoma presence in patients is detected using imaging technology based on an AI model. Melanoma patients show serous different vascular patterns that show the presence of skin-related cancer cells in the body of patients[14]. Studies reveal that numerous factors determine the severity of melanoma in different patients. Age and medical history of the patient greatly determines his type of skin cancer. By grouping the patients according to age group, it becomes easier for clinicians to treat the[15]. Studies predict that high-risk melanoma patients are provided with surveillance using imaging technology. The higher efficiency of the imaging technique makes detecting cancerous cells on the skin easier. Improvements in imaging technology for melanoma are carried out using AI software in work these technologies[16]. Studies explain that different cancer types have different bases. Genetic abnormalities, as well as exposure to direct UV, sometimes results in the onset of melanoma. The identification of risk factors plays a key role in tackling the abnormalities behind the onset of melanoma[17]. Studies claim that digitalized technology is used to image the full body of melanoma patients in the treatment process. The MSP is a 3 3-dimensional technology that is specially designed to take pictures of melanoma patients. The need for biopsies from melanoma detection is reduced by using the MSP methodology. High protocols have been followed in various states around the world before the use of the MSP to ensure its safe use[18]. studies explain that dermatologist uses CNN to evaluate skin lesions due to melanoma conditions in patients. The process of detecting the onset of skin cancer is possible using the CNN technology [19]. Studies suggest that in some cases, surgical treatment methods have been employed to treat melanoma cases. Lentigo melanoma is broadly treated using surgical treatment procedures along with RCM. The survival outcomes of patients due to surgical treatment are higher in most cases. Moreover, the extent to which surgical treatment is efficient depends upon the type of skin cancer and the severity associated with it[20]. Studies explain that abnormalities associated with melanocytes cause skin cancer. Melanocytes are the cells involved in normal pigmentation formation. The abnormality in pigmentation production by melanocytes onsets the skin-related problems. Clinical examination of the skin helps diagnose [21]. Studies predict that UM is a type of eye cancer that is malignant and spreads to other parts of the body. The most common sight for UM malignancy is the liver. liver examination predicts the presence of UM cells in the liver .the patients of UM are provided with several guidelines to make the spread of this cancer less problematic These guidelines help to lower the malignancy caused by UM in the liver[22]. The commonly prevalent types of melanomas are three types. These types have different severity in different patients. The mortality rate due to the three main types varies among people. radiologists are using radiology and image-based technology to detect the complexity of all three types of melanoma[23] Studies of scholars explained that several factors are regarded as harmful risk factors for the onset of skin cancer in the majority of people. the environmental factor is a major risk factor. Other risk factors include UV rays that direct skin exposure and induce skin cancer in people. The Family history of the patient plays a significant role in determining the chances of skin cancer prevalence [24]. Diagnosis tools have been developed to determine the clinical pathology behind the occurrence of melanoma. the diagnostic tools rapidly predict the distant factors that could cause skin cancer in patients during the early stage[25]. Scholars explain the annual

occurrence rate of melanoma is one point four percent (1.4) diagnosing the cancer at an early stage increases the survival chances by ninety-nine percent. ML tools diagnose the skin cancer-related percentage and the rate at which this disease spreads. ML is also used in diagnostic tools[26]. The diagnosis and methods used to predict melanoma types also determine the risk factor associated with each specific type of skin cancer[27]. Their subject of clinical pathology determines the skin cancer-related malignancy as well as the consequences due to the spread of this cancer. The subtypes of melanoma possess equal risk as the main melanoma type. the patterns of skin pigmentation may vary each skin cancer type, but the severity of each melanoma type is serious[28] Studies show that melanoma is regarded as the deadliest cancer because it occurs all over

the body. First-line treatment against this skin cancer is efficient in diagnosing the complications of this disease. CAD computer-based technology is used to explain the details of images of patients with skin cancer. The main aim of any treatment against melanoma is to avoid the life-threatening condition. Also, the trend of creating a digitalized clinical system for both patients and physicians has gained popularity due to the modernization of the health system. Computerized systems provide easy patients and doctors with easy to understand instructions [29]. Studies claim that various treatment methods have been developed against melanoma that stop the recurrence of the disease once a patient has passed the survival stage. These treatment programs are made using specialized AI-based technology that improves the biopsy process and increases the patient's survival chances[30].

Theoretical Model

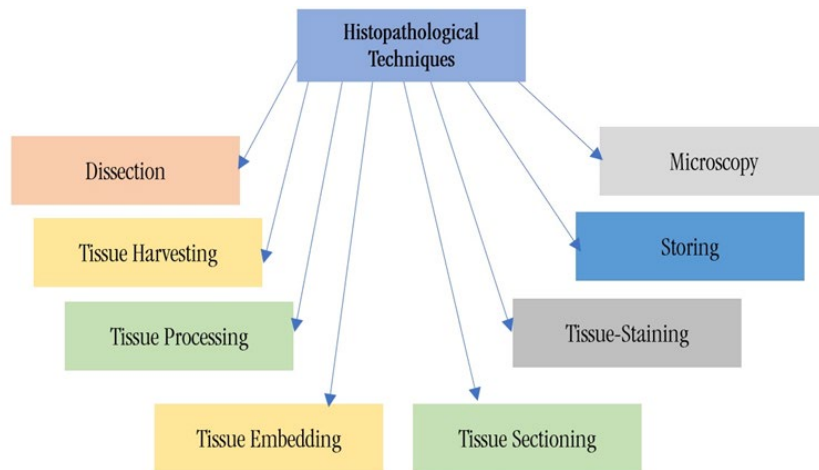


Figure 1: Result of Theoretical Model

Skin cancer has been increasing in our society day by day because of various factors in the environment. Melanoma is also a type of skin cancer in which there is cancer in melanocytes (Figure 1). These cells are responsible for pigmentation in the skin. Different histopathological techniques are used to make early detection possible. As we know, earlier action of melanoma makes it easy to treat it with a high chance of results as well. Following are the important implications of Histopathological Techniques for Detecting Early Signs of Melanoma in High-Risk Groups:

Early Diagnosis and Treatment, Risk Stratification, Personalized Medicine, Better Patient Management

The treatment of Melanoma is dependent upon early diagnosis of it. As we know if it, if his cancer spreads to whole body tissues; it can be fatal. The main important implication of Histopathological Techniques for Detecting Early Signs of Melanoma is that it ensures Early and effective diagnosis of melanoma which plays essential role in treatment of Melanoma. The other important implication of histopathological techniques for detecting early signs of melanoma is risk stratification. As it is explained by medical studies there are some groups in human population who are at high risk of any disease. In the same case, some population groups are at high risk of melanoma. To get an understanding of these risk groups, there is a need for proper screening and surveillance as well. These histopathological techniques help us in such a way that proper screening and surveillance are beneficial for risk stratification. The other important implication of histopathological techniques for detecting early signs of melanoma is

personalized medicine. There are some important treatment strategies that Histopathological Techniques suggest. These strategies may prove effective for customised medicine. In this way, the cost of treatment in the Case of melanoma can be reduced to an extent. The other important implication of Histopathological Techniques for Detecting Early Signs of Melanoma is the aspect of better patient management. We know that sometimes in detecting any particular disease, there are many unnecessary tests for it. This aspect will take much time in the detection of disease, and at the same time, these unnecessary tests may reduce the chance of accurate results. The Histopathological Techniques are helpful in this way that there is no need for any unnecessary tests in it. Scientific studies prove that skin tissues are primarily affected in Cases of melanoma. The Histopathological Techniques mostly aim to study structure and changes in tissues at microscopic level. This microscopic examination of tissues may provide authentic and accurate information for early detection of melanoma. A tissue can be defined as a group of cells performing the same function. In the case of any type of cancer, there is an abrupt change in the structure of these tissues, which Histopathological Techniques can easily detect. These aspects will help in better patient management in the healthcare sector.

Biomarkers Discovery, Screening Programs, Awareness Campaigns, Allocation of Resources

As we know, biomarker identification is essential in the diagnosis of melanoma. Diagnosing these biomarkers will help to understand the accurate causes of melanoma. The study of these biomarkers is

only possible by Histopathological Techniques because it involves the study of cancerous cells at microscopic level. These Histopathological Techniques will also help discover new type of types markers that case melanoma in the human body. So, it is the important implication of Histopathological Techniques that they help us in the discovery of new biomarkers as well, which are related to Melanoma. The other important implication of histopathological techniques for detecting early signs of melanoma is the screening programs. As we know, it is evident from medical studies that there is a time gap between the onset of cancer in the body and the showing of its detectable symptoms. If we want to know about any cancer in the early stage, we need to perform screening tests regularly. These screening tests are performed not only in high-risk groups of suspected Melanoma but also in normal and healthy populations. These screening tests will help to know about the Risk of melanoma in a particular population before showing any symptoms. In this way, Histopathological Techniques are helpful in carrying out screening tests. The other important implication of histopathological techniques for detecting early signs of melanoma is the awareness campaign. Awareness about any particular disease is very important for the prevention of disease. In the Case of melanoma, which is a type of skin cancer, awareness can be spread in the particular population about the causes of melanoma. In

this way, when we get information using histopathological techniques, it will help us spread information related to melanoma.

The other important implication of histopathological techniques for detecting early signs of melanoma is the allocation of resources. As described by medical studies there, there are some particular populations that are at high risk of melanoma. So, resources must be accurately used at those places for screening tests and awareness campaigns. In this way, resources can be used in a better way in view of medical science.

Epidemiological Studies

There are some diseases which have a higher risk in a particular area as compared to other places. For example, one cause of melanoma is mutation which is caused by highly penetrating radiations such as gamma rays. So, there are areas with high intensity rays, and there may be more risk of melanoma there. So, it is an important implication of Histopathological Techniques for Detecting Early Signs of Melanoma that it can also help in epidemiological Studies in different ways. These implications convince us about the importance of Histopathological Techniques for Detecting Early Signs of Melanoma in a particular population.

Table 1: The Result of Paired Samples Statistics

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Histopathological Techniques	1.5200	50	.67733	.09579
	Melanoma	1.6800	50	.62073	.08778
Pair 2	Dissections	1.5400	50	.61312	.08671
	Melanoma	1.6800	50	.62073	.08778
Pair 3	Tissue Harwasting	1.6000	50	.60609	.08571
	Melanoma	1.6800	50	.62073	.08778
Pair 4	Tissue Processing	1.5800	50	.60911	.08614
	Melanoma	1.6800	50	.62073	.08778
Pair 5	Tissue Embedding	1.7400	50	.63278	.08949
	Melanoma	1.6800	50	.62073	.08778
Pair 6	Tissue Sectioning	1.4600	50	.57888	.08187
	Melanoma	1.6800	50	.62073	.08778
Pair 7	storing	1.6200	50	.60238	.08519
	Melanoma	1.6800	50	.62073	.08778
Pair 8	Microcopy	1.6800	50	.62073	.08778
	Melanoma	1.6800	50	.62073	.08778

The above result of table 1 represents that paired sample descriptive statistical analysis results demonstrate that mean values and the standard deviation value also explain the significant values of each pair, including dependent and independent. The first pair is histopathology techniques, and melanoma results show that its mean value is 1.5200. The significant value is 0.095, and 0.087 shows that 9% and 8% are significantly related to them. The second pair is

Dissections and Melanoma It describes that the significant value is 87%, respectively. The third pair is Tissue Harwasting, and Melanoma results describe that the mean values are 1.6000 and 1.5800, and the significant values are 85% and 87%. Similarly, pair 8 is Microcopy and Melanoma, and the result describes that the mean value is 1.6800, and the significant value is 87%, which is a significant level between them. The standard deviation rate is 62%, deviating from the mean.

Table 2: The Result of Paired Samples Correlations

		Paired Samples Correlations		
		N	Correlation	Sig.
Pair 1	Histopathological Techniques & Melanoma	50	.210	.144
Pair 2	Dissections & Melanoma	50	-.019	.894
Pair 3	Tissue Harwasting & Melanoma	50	-.022	.881
Pair 4	Tissue Processing & Melanoma	50	-.309	.029
Pair 5	Tissue Embedding & Melanoma	50	.355	.011
Pair 6	Tissue Sectioning & Melanoma	50	-.036	.802
Pair 7	storing & Melanoma	50	.487	.000
Pair 8	Microcopy & Melanoma	50	-.059	.682

The above result of table 2 demonstrates that paired samples correlation analysis the first pair is Histopathological techniques and Melanoma shows that its correlation rate is 0.210 the significant value is 0.144 its shows a positive and 14% significant link between histopathological techniques and Melanoma. The second pair is

Dissections and Melanoma result shows that its correlation rate is -0.019, its significant value is 0.894, its present negative but 89% significant link with them. pair 6 is Tissue Sectioning, and Melanoma result shows -0.036, and the significant value is 0.8802. Its shows negative but 80% significant correlation with them.

Table 3: The Result of Paired Samples Test

		Paired Samples Test							
		Paired Differences				T	Df	Sig. (2-Tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Histopathological Techniques - Melanoma	-.16000	.81716	.11556	-.39224	.07224	-1.385	49	.172
Pair 2	Dissections - Melanoma	-.14000	.88086	.12457	-.39034	.11034	-1.124	49	.267
Pair 3	Tissue Harwasting - Melanoma	-.08000	.87691	.12401	-.32922	.16922	-.645	49	.522
Pair 4	Tissue Processing - Melanoma	-.10000	.99488	.14070	-.38274	.18274	-.711	49	.481
Pair 5	Tissue Embedding - Melanoma	.06000	.71171	.10065	-.14227	.26227	.596	49	.554
Pair 6	Tissue Sectioning - Melanoma	-.22000	.86402	.12219	-.46555	.02555	-1.800	49	.078
Pair 7	storing - Melanoma	-.06000	.61974	.08764	-.23613	.11613	-.685	49	.497
Pair 8	Microcopy - Melanoma	.00000	.90351	.12778	-.25677	.25677	.000	49	1.000

The above result of table 3 demonstrates that paired sample test analysis results represent the mean values, standard deviation rates, and 95% confidence interval, and also explain the t statistic and significant value of each pair. The first pair is Histopathological Techniques, and the Melanoma result shows that the mean value is -0.1600, the t-statistic value is -1.385, and the significant value is 0.172, showing a negative but 17% significant value between them. The below

result of table 4 demonstrates that chi-square analysis results describe the chi-square values and significant values of each variable, including dependent and independent variables. The chi-square values are 17.320, 17.560, 16.840, 14.840, 22.360, 17.080, 15.522, and 15.520. These are all values that show a positive chi-square analysis between them. The overall significant value is 0.000, which shows 100% significant values between them.

Table 4: The Result of Test Statistics

Test Statistics									
	Histopathological Techniques	Dissections	Tissue Harwasting	Tissue Processing	Tissue Embedding	Tissue Sectioning	Storing	Microcopy	Melanoma
Chi-Square	17.320 ^a	17.560 ^a	16.840 ^a	16.840 ^a	14.680 ^a	22.360 ^a	17.080 ^a	15.520 ^a	15.520 ^a
Df	2	2	2	2	2	2	2	2	2
Asymp. Sig.	.000	.000	.000	.000	.001	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.7.

Table 5: The Result of Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of The Estimate
1	.601 ^a	.362	.237	.54219

a. Predictors: (Constant), Microcopy, Tissue Sectioning, storing, Tissue Processing, Histopathological Techniques, Tissue Harwasting, Dissections, Tissue Embedding

The results of 5 above show that each model's estimated value's standard error, R-value, R squared, and adjusted R squared are all described in the model summary results. The adjusted R square rate is 0.237, the R rate is 0.601, and the R square value is 0.362. 0.54219 is the estimated value. It demonstrates the model's analytical fit. 60% of the study is deemed suitable for analysis. 4% of all skin cancer lesions are malignant melanoma (MM), which has the highest crude fatality rate (2.9 per 100,000 people in the USA and 3.6 per 100,000 people in Europe as of 2018). Early diagnosis is essential to optimise the chance of survival since, when employed promptly, existing therapies are extremely effective.

Additionally, if the cancer is not addressed, the cost of therapy rises over time; for instance, stage IV melanoma can cost up to \$159,808. A \$4,648 in-situ melanoma is expensive. Digital chemiluminescence, often called "video-dermos copy," is a result of these new technologies. This simplified the process of exchanging clinical pictures and facilitated the follow-up on ambiguous lesions. It also made it possible

to use diagnostic methods with telemedicine techniques. The current gold standard for melanoma diagnosis is a dermos copy. After the tissue is removed, a biopsy and a subsequent histological investigation take place. A significant percentage of equivocal lesions observed under a microscope are biopsied to minimise the chance of misidentifying actual melanomas. Both the total cost of testing and the time it takes to receive a conclusive diagnosis are increased by this method. One drawback of dermoscopy is that it can only reveal morphological information about a lesion. There are more non-invasive diagnostic techniques than dermoscopy.

By gathering more information about a lesion, these techniques may help increase the diagnosis's accuracy and reliability. Using other techniques in addition to or instead of dermoscopy may enhance the accuracy of the diagnosis, the clinician's ability to classify skin lesions, and the prompt identification of melanoma in clinical settings. The below result of table 6 demonstrate that ANOVA test analysis result describes that sum of square values, the mean square values, the F

statistic and significant value of each model. The first model is regression. Its sum of square value is 6.827 the mean square value is 0.853 the F statistic value is 2.903 the significant rate is 0.012 shows that positive and 12% significant rate between them.

The residual value shows that sum of square rate is 12.053 the mean square rate is 0.294 respectively. The result demonstrates that total value is 18.880 respectively shows positive sum of square rate between them.

Table 6: The Result of ANOVA

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.827	8	.853	2.903	.012 ^b
	Residual	12.053	41	.294		
	Total	18.880	49			

a. Dependent Variable: Melanoma

b. Predictors: (Constant), Microcopy, Tissue Sectioning, storing, Tissue Processing, Histopathological Techniques, Tissue Harwasting, Dissections, Tissue Embedding

Table 7: The Result of Coefficients

Coefficients						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.729	.615		1.185	.243
	Histopathological Techniques	.141	.125	.154	1.127	.266
	Dissections	.024	.142	.024	.170	.866
	Tissue Harwasting	.079	.140	.077	.563	.577
	Tissue Processing	-.273	.136	-.268	-2.002	.052
	Tissue Embedding	.173	.148	.176	1.172	.248
	Tissue Sectioning	.042	.145	.039	.289	.774
	Storing	.397	.153	.385	2.587	.013
	Microcopy	.000	.147	.000	.001	.999

a. Dependent Variable: Melanoma

The above result of table 7 demonstrate that linear regression analysis result describes unstandardized coefficient values also that standardized coefficient value of variables. the result describes that t statistic values and significant value of each indicator. the histopathological Techniques is main independent variable result demonstrate that beta value is 0.141 the standard error value is 0.125 the t statistic value is 1.127 and that significant rate is 0.266 its shows a positive and 26% significant link with Melanoma. The Dissections is a part of main variable result shows that 86% significant link with Melanoma. Similarly, the Tissue Sectioning shows that t statistic value

is 0.289 the significant rate is 0.774 its shows that 28% positive and 77% significant relation between them. The below graph of figure 2 presents that histogram analysis between the Histopathological Techniques and Melanoma. The vertical side shows count number its start from 0 and end at 30. The horizontal side shows strongly agree, agree, and neutral level between them. The below analysis of figure 3 represents those hypsographical techniques and melanoma also that dissections relation between them. The blue line shows strongly agree factor, red present agree, green neutral and yellow shows that strongly disagree level between them.

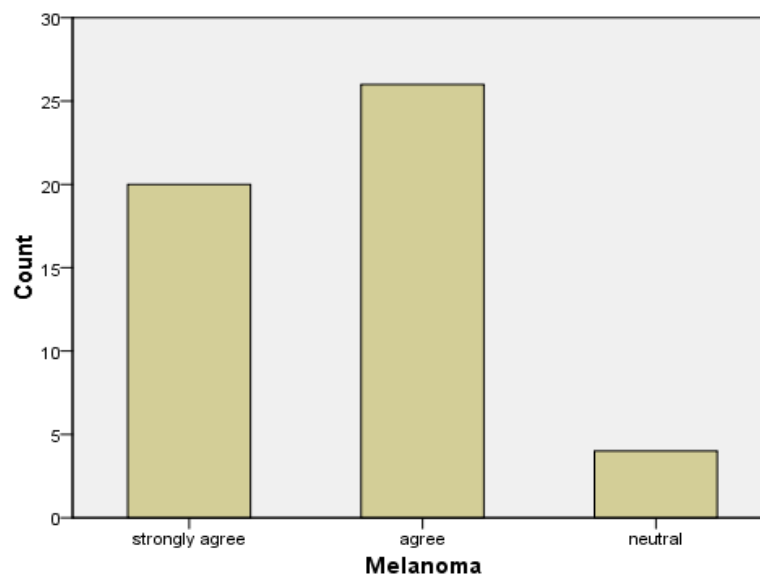


Figure 2: Histogram Analysis Between the Histopathological Techniques and Melanoma

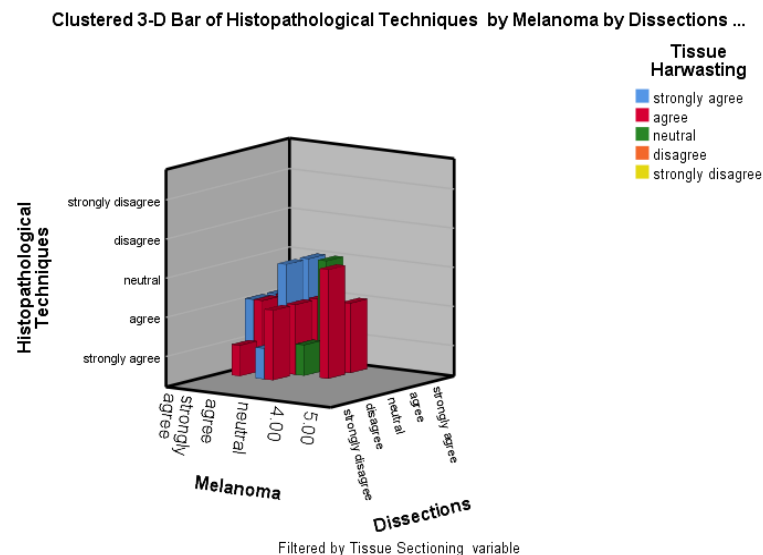


FIGURE 3: Dissections Relation Between Hypsographical Techniques and Melanoma

Conclusion

We may conclude that these histopathological techniques are very effective for early diagnosis and treatment of melanoma in several areas after reviewing the implications of these techniques for detecting early signs of the disease. Other than the metrics mentioned, a technique's acceptance and clinical utilisation may be hindered by elements including clinical acceptability, technique usability, ease of use, and findings interpretability. These are significant but unquantifiable elements. With the clinician at the centre of the decision-making process, the literature analysis included in this review

yielded meta-analytical evidence that can be used as a quantitative and methodologically sound basis for selecting the optimal technique for a particular clinical case, timing, or workflow. The primary obstacles that hindered a comprehensive evaluation of all the methods discussed were: (i) study heterogeneity (e.g., clinical trials, retrospective analysis); (ii) testing strategy differences (e.g., benign vs. malignant, melanoma vs. nevus); and (iii) diagnostic task definitions. Some methodological errors may affect the results and validity of performance comparisons. These suggestions are intended to more fully evaluate and compare the diagnostic effectiveness of the technology under study, with a focus on patient safety above all else.

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