

COMPLICATIONS AND NEGATIVE EFFECTS AFTER HEMORRHOIDECTOMY DONE BY LEGASURE

Tareq Jawad kadem Al-Rubayee^{1*}

Ministry of Higher Education and Scientific Research, AL-Rasheed University College-Department of
Pharmacy, Baghdad, Iraq¹

Corresponding author: 1*



Keywords:

hemorrhoidal Complications,
patients, Ligasure.

ABSTRACT

One hundred patients with hemorrhoids were collected, which were removed by Ligasure, and the purpose of the research was to know the complications that this method generates after the surgery. The process is reduced by about half, and a final definition or a complete description of the subject has been reached as follows, and since the usage of the Ligasure technique results in significantly less immediate postoperative pain after hemorrhoidectomy without any adverse effect on postoperative complications, recovery, and incontinence-rate, this technique is superior in terms of patient tolerance. Moderate to severe pain after surgery remains a problem in outpatient surgery. It causes patient flow problems and delays patient discharge and is one of the main reasons for hospital readmission and thus an adequate quality indicator for these units. The use of in-house invasive analgesic techniques, in all their regimens, can be effective in managing postoperative pain in these surgical procedures and allow for inclusion in outpatient surgery programs. Hemorrhoidal tissue comprises a group of structures (veins, arteries, and muscle fibers) located within the anus that form hemorrhoids. Its function is to fill the anal canal and help maintain urinary incontinence. Hemorrhoids are a normal part of our bodies. When these structures become inflamed, crowded, or displaced from their anatomical location, hemorrhoids, or hemorrhoidal disease, occur.



This work is licensed under a Creative Commons Attribution Non-Commercial 4.0
International License.

1. INTRODUCTION

Hemorrhoidectomy is a traditional surgical operation performed at such stages of disease development when low-traumatic techniques are not indicated. Conventional surgery is a painful procedure characterized by a record low rate of disease recurrence. Recommend timely removal of pathological elements - this will completely restore health and prevent the development of many complications of hemorrhoids [1]. Surgical removal of the nodes is performed under anesthesia in a hospital. To ensure the operation's success, one must first cleanse the intestines and follow all the doctor's recommendations during the rehabilitation period [2]. There is a physiological structure made up of vascular plexuses surrounding the anal canal and forming

some pads. When these bandages expand and cause pain, they are called hemorrhoids or hemorrhoidal diseases [16- 31]. Can categorize them into external, internal, and mixed, each of which presents very diverse symptoms. However, in general, hemorrhoids cause bleeding during or at the end of the stool, anal itching, discomfort caused by prolapse of the anal tissue, and a sensation of inflammation. Anal "bump." The pain can be severe in some cases due to a blood clot or contraction of the anal sphincter [3]. Approximately 10% of patients with symptomatic hemorrhoids will require surgery, with surgery reserved for those who have not responded to conservative treatment. Hemorrhoidectomy removes the excess tissue of dilated veins, performed by a general surgeon specializing in the area. Proctology occupied an essential part of the surgical activity in general surgery services in most institutions, both in the private and public spheres. Outpatient surgery has contributed significantly to changing treatments when dealing with various diseases, reducing hospital treatment costs, and allowing the patient to return to work quickly [4].

The definition, etiology, and treatment of hemorrhoids are very dynamic concepts, which have constantly been changing in recent times. Hemorrhoidal diseases are prevalent, but their prevalence is unknown because patients are not consulted until they have advanced pathology. It's an important decision due to the disturbances it generates in all areas of the patient, both personal, work, and social. According to the degree of hemorrhoids, different treatments are performed. Begins with medical recommendations: changes in eating habits, incorporating physical activity into daily life, and patients who do not have medical treatment are candidates for surgical treatment. An ideal hemorrhoidectomy technique should allow all diseased tissue to be removed, provide the patient with minimal postoperative pain, and be free of recurrence. There is no technology to advance these three hypotheses, and postoperative pain management is the biggest problem [5].

1.1 Possible side effects and complications

1. Pain syndrome

Pain is an unpleasant side effect of any surgery, so after surgery, r doctor will prescribe painkillers. It should be taken at the dose prescribed by r doctor.

It must be remembered that pain is the watcher of the body, reporting danger. Be sure to tell r doctor if:

- The pain syndrome is not relieved by standard means.
- the pain changes its character (becomes pulsating, radiating, etc.);
- Pain syndrome accompanied by other symptoms of trouble (weakness, headache, fever).

A change like the pain syndrome, an increase in the intensity of pain, and the appearance of additional symptoms may indicate the development of complications [6].

2. Infectious and inflammatory processes

The most common complication of surgical interventions is an infection of the wound with its subsequent strengthening. This development of events is facilitated by an injury and a decrease in immunity after surgery (any intervention is stress for the body). An excision of hemorrhoids aggravates the situation because the wound surface in the rectum is inhabited by microbes, through which stool filled with bacteria passes. The development of the infectious inflammatory process can lead to the formation of an abscess (abscess), poisoning due to the ingress of toxins of microorganisms into the bloodstream, or even sepsis (blood poisoning). To prevent the development of infection, clean the postoperative wound regularly and prescribe oral or intramuscular antibiotics. When an abscess occurs, it is surgically opened [7].

3. Seam spacing

Stitching discrepancies often develop as a result of hard stools in the wound after surgery. Prevention of

such complications consists of a special diet. If necessary, I may recommend abstaining from food for some time to delay the first stool. Another preventative measure is stool softening medications.

This complication often occurs in the early postoperative period. Depending on the specific situation, the problem can be solved with the help of surgery or conservatively.

The spacing of the seams is fraught with the addition of an infectious process and the development of other, more rare complications [8].

4. Retention of stool and urine

Urinary retention after surgery is usually reflex. This complication develops mainly in men. In such cases, doctors use a catheter to empty the bladder in time. After that, the urine passage is completely restored.

Habitual stool retention may result from the patient's fear of pain during bowel movements. Cases of chronic constipation and even "psychological" intestinal obstruction have been described. These complications can be easily treated with "mild" laxatives.

However, it must be kept in mind that stool retention after surgery is a symptom of many serious complications. Therefore, if there is a tendency to constipation, it is necessary to seek help from a doctor.

5. Other complications

Complications of hemorrhoidectomy are rare. Some diseases, as a rule, develop against the background of an infectious and inflammatory process, suture spacing, or other complications [9].

Relatively rarely, after surgery to remove hemorrhoids, there are:

- Rectal fistula (abnormal connections between the rectum and another organ and the surface of the perineum).
- Thrombotic complications (thrombosis or thrombophlebitis of the inferior vena cava).
- bleeding;
- Thromboembolism (blockage of the main arteries, separated thrombus).
- Stenosis of the anal canal.

All the described diseases are treatable. For fistulas and bleeding, surgery is required, and strictures of the anal canal are often treated with mechanical stretching. And excision of hemorrhoids depends on

1. Open hemorrhoidectomy

Open hemorrhoidectomy is the most "ancient" traditional operation, first performed in the 30s of the last century by proctologists Milligan and Morgan.

The Milligan-Morgan operation is performed under general anesthesia, less often under local anesthesia. The patient is supine on the couch; the legs are fixed on supports in the raised position [10].

Hemorrhoidectomy is performed using a dilator and an anoscope. The surgeon grabs the internal nodules and turns them out along with the surrounding tissues. The knot is removed after cutting the skin and suturing the feeding vessel.

A characteristic feature of the method: the wound surfaces are not sutured - hence the name "open hemorrhoidectomy." After the operation is completed, the surgeon inserts a tampon with an antiseptic and a wound-healing agent.

The patient remains in the hospital for 5-7 days. Stool softeners and healing tablets are prescribed [11].

2. Closed hemorrhoidectomy

Closed hemorrhoidectomy is a modified Milligan-Morgan operation, first performed in the middle of the last century by surgeon Ferguson.

Ferguson surgery can be performed under general or local anesthesia. When the action of the pain reliever relaxes the anal sphincter, the surgeon inserts the anal speculum into it. In the future, closed

hemorrhoidectomy, in general terms, repeats the Milligan-Morgan technique: the vascular base of the hemorrhoids is sutured and ligated.

Then the knot is removed, and the wound surface is sutured with catgut thread, which subsequently dissolves. The average length of hospital stay after Ferguson's hemorrhoidectomy is five days.

In the postoperative period, pain relievers and mild laxatives are prescribed. You don't have to remove the stitches as the thread will dissolve on its own.

3. Operation Parks

Another modification of the Milligan-Morgan operation was proposed in the middle of the last century by the English proctologist Parks.

Surgical intervention is performed under general anesthesia. The patient lies on his back with the limbs apart. The surgeon cuts the mucous membrane above the nodule; a ligature is applied to the base of the nodule and stitched with a thread.

Then the pathological element is removed, the thread is pulled, and the edges of the mucous membrane are sewn together. Thus, Parkes' hemorrhoidectomy is a kind of plastic surgery [12].

Upon completion of the intervention, a tampon with medicinal substances is inserted into the anal passage. To prevent spasms of the sphincter, mechanical expansion of the anus is used [13].

After Parkes hemorrhoidectomy, the patient must fast to delay defecation, which threatens to open sutures. Subsequently, a sparing diet is indicated, ensuring timely soft stools [14], [15].

2. Material and method

One hundred samples were collected, and a retrospective analysis was performed on a prospectively loaded database where the variables studied were sex, age, hemorrhoids degree, complications, and degree of satisfaction. Regarding difficulties, they were divided into early (from the immediate postoperative period until seven days of surgery), medium (from day 8-30 after surgery), and late (30 days after surgery). Urinary incontinence and patient-related outcomes were considered Secondary outcome measures. The process variables were working Time in minutes and blood loss in milliliters. Complications were Postoperative bleeding, urinary retention, constipation, incomplete Wound healing, anal fissure, anal stenosis, and delayed minor bleeding. Delayed light bleeding was considered a frequent disease. Urinary incontinence was defined as any degree of incontinence at follow-up.

2.1 Statistical analysis

Statistical analysis was carried out by SPSS 25 program to find out the statistical methods used to inventory the results in a scientific and advanced manner. In this analysis and extract R correlation.

3. Results

The age group was divided into several groups consisting of p groups, and the ages were limited to between 20 and 60, and ages were distributed as follows.

Table 1- shown the distribution of age.

Age (years)	N (100)
20 – 30	33

30-40	40
40-50	14
50	13

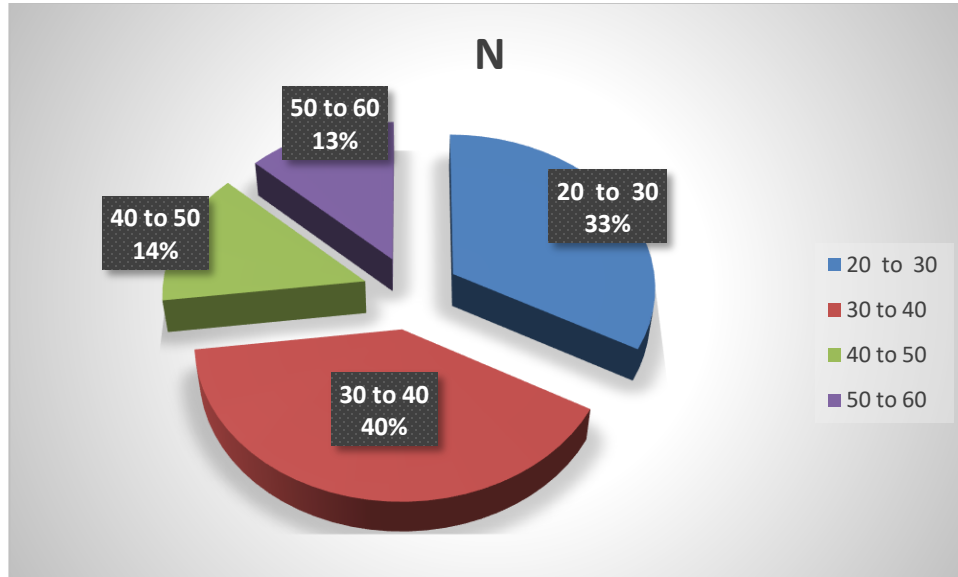


Fig 1- forms of age on the area selected.

Table 2- characteristics of the patient.

G	N
Loss of blood	10
3 RD d	12
4 th	15
Period (operation)	32 min

Table 3- explain the distribution of patients depends on pain.

Type of pain	N
Pain at immediate	4.41 (0.88)

At 1 st	4.82 (0.91)
At 7 th	1.5 (0.63)
Mucosa	3.4 (0.4)
The presence of a foreign body in the anal canal	4.2 (0.9)
Quantity blood loss mm	10 (16.2)

Table 4 – p-value of the patient.

Type of pain	P
Pain at immediate	0.002
At 1 st	0.001
At 7 th	0.001
Mucosa	0.003
The presence of a foreign body in the anal canal	0.001

Quantity blood loss mm	0.004
------------------------	-------

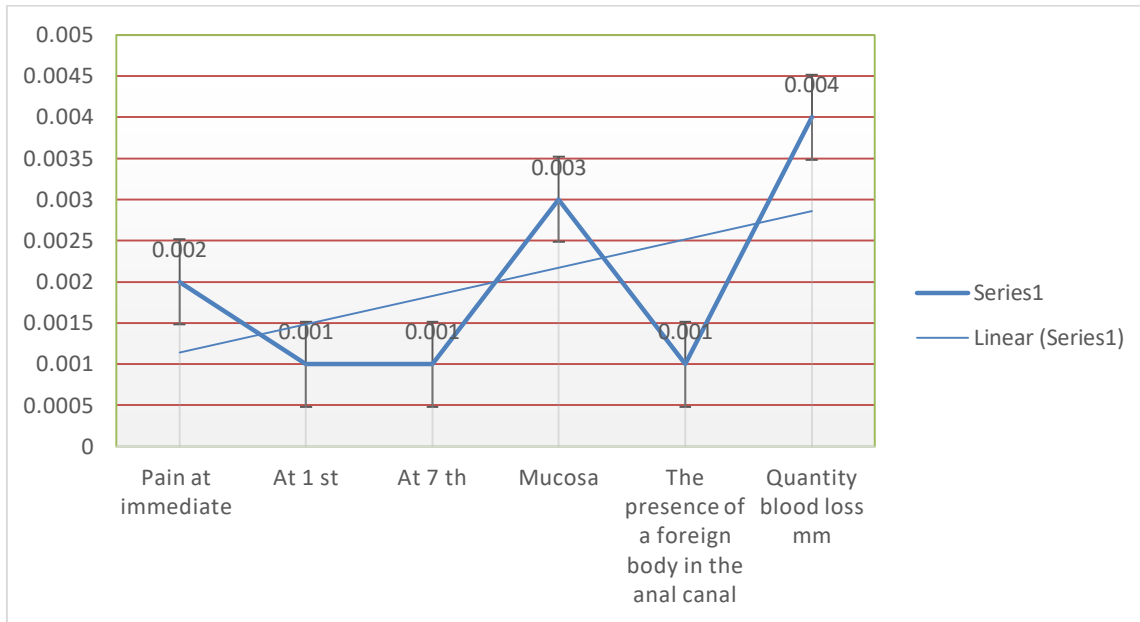


Figure 2- explain the elevation of the p-value.

Table 5- Convalescence.

p	HE %	95%CI (-)
Closed	68	0.19
Return to work (days)	81	4.88
MJS > 3/Open	87	7.01

4. Discussion

Pain following hemorrhoidectomy is a well-known complication. One possible explanatory factor is tissue damage by the thermal spread of diathermy. Avoiding or minimizing extended thermal injury might result in decreased postoperative pain. It has been postulated that such minimal thermal injury can be achieved with the use of a bipolar electro thermal sealing device (Ligasure-TM, Valleylab, Boulder, CO) Ligatures are the latest devices to treat hemorrhoids; they remove or cut hemorrhoids without surgical threads. This method is characterized by A small percentage of bleeding after the operation, in addition to reducing the

operation time by about half, and the presence of some other advantages, including the speed of wound healing compared to traditional surgical methods. Image, allowing blood vessels to close quickly and safely without damaging surrounding tissue. The ability of the device to automatically adjust the operating mode, taking into account the characteristics of the tissues, excludes the possibility of burns and inflammatory reactions in the exposure area. The energy boost is pushed through the tissue, causing the liquid to evaporate quickly and the collagen fibers to dissolve evenly. An airtight clamp is formed on the vessel wall, reliably closing its cavity.

This process is not accompanied by bleeding. Hemorrhoidectomy using the Ligature device is not significantly different from the Milligan-Morgan operation. The main advantage is that there is no need to tie the hemorrhoidal veins during the process and then suture the stumps of the removed nodes. This makes the intervention completely bloodless and less traumatic. The postoperative period is less painful than the regular operation due to the absence of stitches and postoperative edema. The entire recovery period is half the time after the classic intervention. The procedure takes no more than 35 minutes and provides a long-term positive result without recurrence of the disease.

Demographic data and the incidence of third- and fourth-degree hemorrhoids were similar in both groups. The operation time was 35 minutes on average in the group working with Ligasure ($p < 0.05$). The incidence of postoperative blood loss was 10% in the group that underwent surgery with Ligasure.

5. Conclusion

Hemorrhoids are one of the most common diseases of the colon and rectum. Although their causes are not known for sure, several factors include chronic constipation or diarrhea, severe efforts during defecation, prolonged sitting on the toilet, lack of fiber in the diet, or pregnancy (from increased pressure in the abdomen).

Demographic data and the incidence of third- and fourth-degree hemorrhoids were similar in both groups. The operation time was 32 minutes on average in the group working with Ligasure ($p < 0.05$). The incidence of postoperative blood loss was 10% in the group that underwent surgery with Ligasure. If all hemorrhoidal bundles are treated, the probability of recurrence is low. Untreated hemorrhoidal piles can produce symptoms at some point. Repeated conventional surgery is indicated between 10 - 15% in surgery with Ligasure to 1%.

6. References

- [1] Grewal, H., Guillem, J.G., Quan, S.H., Enker, W.E. and Cohen, A.M., 1994. Anorectal disease in neutropenic leukemic patients. *Diseases of the colon & rectum*, 37 (11), pp.1095-1099.
- [2] Khan, K.I., Akmal, M., Waqas, A. and Mahmood, S., 2014. Role of prophylactic antibiotics in Milligan Morgan hemorrhoidectomy—a randomized control trial. *International Journal of Surgery*, 12 (8), pp.868- 871.
- [3] Cataldo, P.A. and Senagore, A.J., 1991. Does alpha sympathetic blockade prevent urinary retention following anorectal surgery? *Diseases of the colon & rectum*, 34 (12), pp.1113-1116.
- [4] Petros, J.G. and Bradley, T.M., 1990. Factors influencing postoperative urinary retention in patients undergoing surgery for the benign anorectal disease. *The American Journal of Surgery*, 159 (4), pp.374-376.

- [5] Bowers, F.J., Hartmann, R., Khanduja, K.S., Hardy, T.G., Aguilar, P.S. and Stewart, W.R., 1987. Urecholine® prophylaxis for urinary retention in anorectal surgery. *Diseases of the colon & rectum*, 30 (1), pp.41-42.
- [6] Zaheer, Salman, W. Terence Reilly, John H. Pemberton, and Duane Ilstrup. "Urinary retention after operations for benign anorectal diseases." *Diseases of the Colon & rectum* 41, no. 6 (1998): 696-704.
- [7] Toyonaga T, Matsushima M, Sogawa N. et al. Postoperative urinary retention after surgery for benign anorectal disease: potential risk factors and prevention strategies. *Int J Colorectal Dis.* 2006;21 (7):676–682.
- [8] Baldini G, Bagry H, Aprikian A, Carli F. Postoperative urinary retention: anesthetic and perioperative considerations. *Anesthesiology.* 2009;110 (5):1139–1157.
- [9] Sutherland, L.M., Burchard, A.K., Matsuda, K., Sweeney, J.L., Bokey, E.L., Childs, P.A., Roberts, A.K., Waxman, B.P. and Maddern, G.J., 2002. A systematic review of stapled hemorrhoidectomy. *Archives of Surgery*, 137 (12), pp.1395-1406.
- [10] Shao, W.J., Li, G.H., Zhang, Z.H., Yang, B.L., Sun, G.D. and Chen, Y.Q., 2008. Systematic review and meta-analysis of randomized controlled trials comparing stapled haemorrhoidopexy with conventional haemorrhoidectomy. *Journal of British Surgery*, 95 (2), pp.147-160.
- [11] Tjandra, J.J. and Chan, M.K., 2007. A systematic review on the procedure for prolapse and hemorrhoids (stapled hemorrhoidopexy). *Diseases of the colon & rectum*, 50 (6), pp.878-892.
- [12] Brisinda, G., Vanella, S., Cadeddu, F., Marniga, G., Mazzeo, P., Brandara, F. and Maria, G., 2009. Surgical treatment of anal stenosis. *World Journal of Gastroenterology: WJG*, 15 (16), p.1921.
- [13] Shao, W.J., Li, G.H., Zhang, Z.H., Yang, B.L., Sun, G.D. and Chen, Y.Q., 2008. Systematic review and meta-analysis of randomized controlled trials comparing stapled haemorrhoidopexy with conventional haemorrhoidectomy. *Journal of British Surgery*, 95 (2), pp.147-160.
- [14] Milsom, J.W. and Mazier, W.P., 1986. Classification and management of postsurgical anal stenosis. *Surgery, gynecology & obstetrics*, 163 (1), pp.60- 64.
- [15] Brisinda, G., Vanella, S., Cadeddu, F., Marniga, G., Mazzeo, P., Brandara, F. and Maria, G., 2009. Surgical treatment of anal stenosis. *World Journal of Gastroenterology: WJG*, 15 (16), p.1921.
- [16] Saleh, M. M., Jalil, A. T., Abdulkereem, R. A., & Suleiman, A. A. Evaluation of Immunoglobulins, CD4/CD8 T Lymphocyte Ratio and Interleukin-6 in COVID-19 Patients. *TURKISH JOURNAL of IMMUNOLOGY*, 8(3), 129-134.
- [17] Moghadasi, S., Elveny, M., Rahman, H.S. et al. A paradigm shift in cell-free approach: the emerging role of MSCs-derived exosomes in regenerative medicine. *J Transl Med* 19, 302 (2021). <https://doi.org/10.1186/s12967-021-02980-6>
- [18] JALIL, A. T., DILFY, S. H., KAREVSKIY, A., & NAJAH, N. (2020). Viral Hepatitis in Dhi-Qar

Province: Demographics and Hematological Characteristics of Patients. *International Journal of Pharmaceutical Research*, 12(1).

[19] Dilfy, S. H., Hanawi, M. J., Al-bideri, A. W., & Jalil, A. T. (2020). Determination of Chemical Composition of Cultivated Mushrooms in Iraq with Spectrophotometrically and High Performance Liquid Chromatographic. *Journal of Green Engineering*, 10, 6200- 6216.

[20] Jalil, A. T., Al-Khafaji, A. H. D., Karevskiy, A., Dilfy, S. H., & Hanan, Z. K. (2021). Polymerase chain reaction technique for molecular detection of HPV16 infections among women with cervical cancer in Dhi-Qar Province. *Materials Today: Proceedings*.

[21] Marofi, F., F. Abdul-Rasheed, O., Sulaiman Rahman, H., Setia Budi, H., Jalil, A. T., Valerievich Yumashev, A., ... & Jarahian, M. (2021). CAR-NK cell in cancer immunotherapy; A promising frontier. *Cancer Science*.

[22] Widjaja, G., Jalil, A. T., Rahman, H. S., Abdelbasset, W. K., Bokov, D. O., Suksatan, W., & Ahmadi, M. (2021). Humoral Immune mechanisms involved in protective and pathological immunity during COVID-19. *Human Immunology*.

[23] Jalil, A.T., Kadhum, W.R., Faryad Khan, M.U. et al. Cancer stages and demographical study of HPV16 in gene L2 isolated from cervical cancer in Dhi-Qar province, Iraq. *Appl Nanosci* (2021). <https://doi.org/10.1007/s13204-021-01947-9>

[24] Sarjito, I., Elveny, M., Jalil, A. T., Davarpanah, A., Alfakeer, M., Bahajjaj, A. A. A., & Ouladsmene, M. (2021). CFD-based simulation to reduce greenhouse gas emissions from industrial plants. *International Journal of Chemical Reactor Engineering*.

[25] Turki Jalil, A., Hussain Dilfy, S., Oudah Meza, S., Aravindhan, S., M Kadhim, M., & M Aljeboree, A. (2021). CuO/ZrO₂ Nanocomposites: Facile Synthesis, Characterization and Photocatalytic Degradation of Tetracycline Antibiotic. *Journal of Nanostructures*.

[26] Hanan, Z. K., Saleh, M. B., Mezal, E. H., & Jalil, A. T. (2021). Detection of human genetic variation in VAC14 gene by ARMA-PCR technique and relation with typhoid fever infection in patients with gallbladder diseases in Thi-Qar province/Iraq. *Materials Today: Proceedings*.

[27] Vakili-Samiani, S., Jalil, A. T., Abdelbasset, W. K., Yumashev, A. V., Karpishev, V., Jalali, P., ... & Jadidi-Niaragh, F. (2021). Targeting Wee1 kinase as a therapeutic approach in Hematological Malignancies. *DNA Repair*, 103203.

[28] NGAFWAN, N., RASYID, H., ABOOD, E. S., ABDELBASSET, W. K., AL-SHAWI, S. G., BOKOV, D., & JALIL, A. T. (2021). Study on novel fluorescent carbon nanomaterials in food analysis. *Food Science and Technology*.

[29] Marofi, F., Rahman, H. S., Al-Obaidi, Z. M. J., Jalil, A. T., Abdelbasset, W. K., Suksatan, W., ... & Jarahian, M. (2021). Novel CAR T therapy is a ray of hope in the treatment of seriously ill AML patients. *Stem Cell Research & Therapy*, 12(1), 1-23.

- [30] Jalil, A. T., Shanshool, M. T., Dilfy, S. H., Saleh, M. M., & Suleiman, A. A. (2021). HEMATOLOGICAL AND SEROLOGICAL PARAMETERS FOR DETECTION OF COVID-19. *Journal of Microbiology, Biotechnology and Food Sciences*, e4229. <https://doi.org/10.15414/jmbfs.4229>
- [31] Abosaooda, M., Majid, W. J., Hussein, E. A., Jalil, A. T., Kadhim, M. M., Abdullah, M. M., ... & Almashhadani, H. A. (2021). Role of vitamin C in the protection of the gum and implants in the human body: theoretical and experimental studies. *Int. J. Corros. Scale Inhib*, 10(3), 1213-1229.