Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Comparison of Nylon and Monocryl Sutures for Skin Closure and Their Effects on Wound Healing Outcomes in Patients Undergoing Hip Arthroplasty: A Randomized Clinical Trial

Protocol summary

Study aim

comparison of nylon and Monocryl sutures in joint replacement surgery in terms of wound healing, complication rates (infection, inflammation, and bleeding), and patient satisfaction.

Design

A prospective, randomized, double-blind, parallel-group clinical trial will be conducted in 100 patients. Patients will be randomized in a 1:1 ratio to nylon or Monocryl skin suture groups using variable block sizes of 4 and 6 through the Sealed Envelope online randomization system.

Settings and conduct

At Imam Khomeini Hospital, following completion of joint replacement surgery, the skin will be closed with nylon sutures in one group of patients and with Monocryl sutures in the other group. Routine postoperative wound dressing and care will then be provided.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Patients requiring hip replacement surgery. Age between 18 and 85 years. Confirmation that the patient is aware of the study and has provided informed consent. Exclusion Criteria: Patients with a history of previous surgery involving the target joint. Patients with inflammatory joint diseases. Patients who smoke or consume alcohol. Patients with hypoalbuminemia or severe anemia. Patients who are unable to provide informed consent.

Intervention groups

After completion of the joint replacement surgery, the skin will be closed with nylon sutures in one group and with Monocryl sutures in the other group.

Main outcome variables

Wound pain intensity, Wound cosmetics, POSAS (Patient and Observer Scar Assessment Scale), Wound complications, Wound healing time

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200305046700N19**
Registration date: **2026-10-10, 1405/07/18**
Registration timing: **prospective**

Last update: **2026-10-10, 1405/07/18**
Update count: **0**

Registration date

2026-10-10, 1405/07/18

Registrant information

Name

Mohammadreza Razzaghof

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-11-06, 1405/08/15

Expected recruitment end date

2027-06-22, 1406/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
Comparison of Nylon and Monocryl Sutures for Skin Closure and Their Effects on Wound Healing Outcomes in Patients Undergoing Hip Arthroplasty: A Randomized Clinical Trial

Public title
Comparison of Nylon and Monocryl Sutures for Skin Closure Following Hip Arthroplasty

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
Patients requiring hip replacement surgery, aged 18 to 85 years, confirmation of patient awareness regarding the study and provision of informed consent.

Exclusion criteria:
Patients with a history of prior surgery in the target joint area patients with inflammatory joint diseases patients who smoke or consume alcohol patients with hypoalbuminemia or severe anemia patients unable to provide informed consent

Age
From **18 years** old to **85 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Participant
- Investigator
- Data analyser

Sample size
Target sample size: **126**

Randomization (investigator's opinion)
Randomized

Randomization description
Patients will be randomly allocated in a 1:1 ratio to either the nylon or Monocryl suture group. Randomization will be performed using the Sealed Envelope online randomization service. A computer-generated permuted block randomization sequence with variable block sizes of 4 and 6 will be used. The randomization sequence will be generated before recruitment and will not be accessible to investigators responsible for patient enrollment. For allocation concealment, each assignment will be associated with a sequentially numbered, sealed, opaque card. After confirming eligibility and enrolling the patient, the study secretary will open the next card in sequence and communicate the assigned group to the surgeon immediately before surgery. Thus, the treatment allocation will remain concealed until the patient has been enrolled and randomized.

Blinding (investigator's opinion)
Double blinded

Blinding description
Patients will be blinded to the type of suture used and will not be informed of their group allocation. On the day of surgery, the patient's group allocation will be communicated to the surgeon by the study secretary. Postoperative data from patients in groups A and B will be collected and recorded by the study assistants. The data will be coded without identifying the suture type or treatment group and will subsequently be provided to the data analyst. The analyst will remain blinded to group allocation and suture type until completion of the statistical analysis.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Tehran University of Medical Sciences

Street address
Tehran University of Medical Sciences, International Campus, Office of Vice-President for Educational Affairs, Number 25, Hojat Dost St., Felestin St., Keshavarz Blvd., Tehran , Iran.

City
Tehran

Province
Tehran

Postal code
1416634793

Approval date
2026-06-02, 1405/03/12

Ethics committee reference number
IR.TUMS.IKHC.REC.1405.142

Health conditions studied

1

Description of health condition studied
Total Hip Arthroplasty

ICD-10 code
Z96.6

ICD-10 code description
Presence of orthopedic joint implants

Primary outcomes

1

Description
Wound pain intensity

Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.

Method of measurement
A numerical scale ranging from 0 to 10, on which the

patient self-reports the intensity of pain.

Secondary outcomes

1

Description
Wound cosmetics
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
POSAS (Patient and Observer Scar Assessment Scale), assessed by both the patient and the observer.

2

Description
Wound complications
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
Clinical assessment and reporting by both the patient and the physician

3

Description
Wound healing time
Timepoint
Days 5 and 14, and weeks 6 and 12, and months 3 and 6 after surgery.
Method of measurement
Assessment of the time required for complete wound healing.

Intervention groups

1

Description
Intervention group: Group 1 (Nylon Suture): In this group, the wounds will be closed using nylon sutures with interrupted subcutaneous stitches.
Category
N/A

2

Description
Intervention group: Group 2 (Monocryl Suture): In this group, the wounds will be closed using Monocryl sutures with interrupted subcutaneous stitches.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Imam Khomeini Hospital Complex
Full name of responsible person
Seyyed MohammadJavad Mortazavi
Street address
Tehran, at the end of Keshavarz Boulevard, Imam Khomeini Hospital Complex.
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tehran University of Medical Sciences
Full name of responsible person
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Street address
Office of Vice-Chancellor for research, Central Building of Tehran University of Medical Sciences, No. 226, Qods St., Keshavarz Blvd.
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Email
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Web page address
http://vcr.tums.ac.ir/
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Tehran University of Medical Sciences
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact

Name of organization / entity
Tehran University of Medical Sciences

Full name of responsible person
Mohammadreza Razzaghof

Position
assistant professor of Orthopedics Surgery

Latest degree
Medical doctor

Other areas of specialty/work
Orthopedics

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Joint Reconstruction Research Center, Imam Khomeini Hospital Complex, East Baqerkhan Street, North Chamran Highway

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD
There is not a plan to make this available

Study Protocol
No - There is not a plan to make this available

Statistical Analysis Plan
No - There is not a plan to make this available

Informed Consent Form
No - There is not a plan to make this available

Clinical Study Report
No - There is not a plan to make this available

Analytic Code
No - There is not a plan to make this available

Data Dictionary
No - There is not a plan to make this available