UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16
UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the Month of: September 2025 (Report No. 4)

Commission File Number: 001-40753

ICECURE MEDICAL LTD.
(Translation of registrant's name into English)

7 Ha'Eshel St., PO Box 3163
Caesarea, 3079504 Israel
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

☒ Form 20-F ☐ Form 40-F

CONTENTS

On September 18, 2025, IceCure Medical Ltd. (the "Company") issued a press release titled "IceCure Granted Notice of Allowance for U.S. Patent for its Next Generation XSense™ Cryoprobes," a copy of which is furnished as Exhibit 99.1 with this Report of Foreign Private Issuer on Form 6-K.

The first and third paragraphs and the section titled "Forward Looking Statements" in the press release attached herewith as Exhibit 99.1 is incorporated by reference into the Company's Registration Statements on Form F-3 (Registration Nos. 333-258660, 333-267272 and 333-290046) and Form S-8 (Registration Nos. 333-270982, 333-264578, 333-262620 and 333-281587), filed with the Securities and Exchange Commission, to be a part thereof from the date on which this Report of Foreign Private Issuer on Form 6-K is submitted, to the extent not superseded by documents or reports subsequently filed or furnished.

EXHIBIT INDEX

Exhibit No.	
99.1	Press release dated September 18, 2025 titled "IceCure Granted Notice of Allowance for U.S. Patent for its Next Generation XSense™ Cryoprobes"

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ICECURE MEDICAL LTD.

Date: September 18, 2025

By: /s/ Eyal Shamir
Name: Eyal Shamir
Title: Chief Executive Officer

Exhibit 99.1

IceCure Granted Notice of Allowance for U.S. Patent for its Next-Generation XSense™ Cryoprobes

The invention is designed to improve cryoprobe extraction, further reducing risk of tissue trauma, leading to lower costs and improved patient experience

XSense™ System with Cryoprobes recently received regulatory approval in the U.S. and Israel

CAESAREA, Israel, September 18, 2025 – IceCure Medical Ltd. (Nasdaq: ICCM) ("IceCure", "IceCure Medical" or the "Company"), developer of minimally-invasive cryoablation technology that destroys tumors by freezing as an option to surgical tumor removal, today announced it has received a Notice of Allowance from the U.S. Patent and Trademark Office for its patent titled "Cryoprobe".

"Our industry-leading liquid-nitrogen-based cryoablation platform has been further advanced with this latest invention, a cryoprobe technology," stated IceCure's Chief Executive Officer, Eyal Shamir. "There is an abundance of data, much of it from independent studies, showing that minimally invasive cryoablation procedures with our flagship ProSense® system have resulted in an improved patient experience with excellent medical outcomes. This new cryoprobe technology, which is integrated in our next-generation XSense™ system, further reduces any potential risk of tissue trauma as the cryoprobe is extracted from the patient at the end of the short, minimally invasive outpatient procedure."

This invention introduces a novel method for safely and efficiently extracting the cryoprobe after tissue freezing during cryoablation procedures. The cryoprobe's tip is integrated with a heater, temperature sensor, and controlled gas pulses, enabling precise estimation and management of the cryoprobe's external surface temperature—even while embedded in frozen tissue. Designed to be compatible with a wide range of XSense™ system cryoprobe types, the new cryoprobe technology is a versatile solution for multiple clinical scenarios.

About IceCure's Cryoablation Systems

IceCure's platform technology, including the ProSense® Cryoablation System and XSense™ Cryoablation System and CryoProbes, provides a minimally invasive treatment option to destroy tumors by freezing them. The systems uniquely harness the power of liquid nitrogen to create large lethal zones for maximum efficacy in tumor destruction in benign and cancerous lesions, including breast, kidney, lung, and liver.

IceCure's cryoablation systems enhance patient and provider value by accelerating recovery, reducing pain, surgical risks and complications. With easy, transportable design and liquid nitrogen utilization, ProSense® and XSense™ open the door to fast and convenient office-based procedure for breast tumors.

About IceCure Medical

IceCure Medical (Nasdaq: ICCM) develops and markets advanced liquid-nitrogen-based cryoablation therapy systems for the destruction of tumors (benign and cancerous) by freezing, with the primary focus areas being breast, kidney, bone and lung cancer. Its minimally invasive technology is a safe and effective alternative to hospital surgical tumor removal that is easily performed in a relatively short procedure. The Company's flagship ProSense® system is marketed and sold worldwide for the indications cleared and approved to date including in the U.S., Europe and Asia.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 and other Federal securities laws. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and similar expressions or variations of such words are intended to identify forward-looking statements. For example, IceCure is using forward looking statements in this press release when it discusses: that data show that minimally invasive cryoablation procedures with the ProSense® system have resulted in an improved patient experience with excellent medical outcomes and that the ProSense® system reduces any potential risk of tissue trauma and the versatile prospective design compatibility with a wide range of XSense™ system cryoprobe types. Historical results of scientific research and clinical and preclinical trials do not guarantee that the conclusions of future research or trials will suggest identical or even similar conclusions. Important factors that could cause actual results, developments and business decisions to differ materially from those anticipated in these forward-looking statements include, among others: the Company's planned level of revenues and capital expenditures; the Company's available cash and its ability to obtain additional funding; the Company's ability to market and sell its products; legal and regulatory developments in the United States and other countries; the Company's ability to maintain its relationships with suppliers, distributors and other partners; the Company's ability to maintain or protect the validity of its patents and other intellectual property; the Company's ability to expose and educate medical professionals about its products; political, economic and military instability in the Middle East, specifically in Israel; as well as those factors set forth in the Risk Factors section of the Company's Annual Report on Form 20-F for the year ended December 31, 2024 filed with the SEC on March 27, 2025, and other documents filed with or furnished to the SEC which are available on the SEC's website, www.sec.gov. The Company undertakes no obligation to update these statements for revisions or changes after the date of this release, except as required by law.

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