Japanese CTO PCI Expert Registry

Date	
Patient Name	
PCI ID	

Please fill in the columns highlighted in yellow with Ball Point pen.

←Please fill in the ID if lesion registration is done online

Patient Basic Information 1

Please note that all fields followed by an asterisk must be filled in.

Patient registration category	○ Case at the affiliated hospital ○ non-affiliated hospital (in own country) ○ non-affiliated hospital (overseas)			
Hospital Name*				
Hospital Dr. in Charge*	Name*		Title*	
	Tel. *		E-mail*	

Japanese Operator Name		Operator ID		Registration Date	
Patient identification code			Patient name Initials		
Patient Identification memorandum					

Basic Information	Date of Procedure*		Patient DOB		Age	
	SEX	○ Male ○ Female	Height	cm	Weight*	kg

Basic Information

Medical History	OMI [1)]	○ Yes ○ None ○ Unknown
	Prior CABG [2)]	○ Yes ○ None ○ Unknown
	Prior PCI	○ Yes ○ None ○ Unknown

1) OMI : Please mark “YES” if diagnosed OMI in past and myocardium is not well.

2) CABG History to be diagnosed at when at First PCI.

Risk Factor	Hypertension	○ Yes ○ None ○ Unknown
	Diabetes	○ Yes ○ None ○ Unknown Choose "Yes" for diabetes Current Treatment: ○ None ○ Dietary Only ○ Oral Anti diabetic Drug ○ Insulin Therapy
	Dyslipidemia	○ Yes ○ None ○ Unknown ※If Statin is prescribed, “Yes”
	Smoking	○ Yes ○ None ○ Unknown If Yes : ○ Currently Smoking ○ Smoking in Past ※"Smoking history" means over 1 month after stop-smoking
	ASO	○ Yes ○ None ○ Unknown
	Coexisted Heart Disease	○ Yes ○ None ○ Unknown If Yes : ○ family history ○congenital heart disease ○Valve disease ○ pacemaker implanted ○ Arrhythmia ○ Others :
	Comorbidity	○ Yes ○ None ○ Unknown If yes: ○ COPD ○ Dialysis ○ Cerebral Vascular Disorder ○ Others :

<Definition of CTO>

1. TIMI 0 (no antegrade flow except bridging/ipsilateral collateral flow)
2. more than 3 months / unknown occlusion duration
3. a total occlusion in a major coronary artery with significant territory or a graft occlusion
4. Multi-occlusion in a same coronary artery (tandem CTO) is deemed to be a single CTO.

Case Basic Information

Clinical application for CTO procedure	○ Asympamatic Isch ○ Stable Angina ○ Unstable Angina ○ OMI ○ AMI			
Angina (CCS Classification)	○ Yes ○ None ○ Unknown If Yes ○ Ⅰ ○ Ⅱ ○ Ⅲ ○ Ⅳ			
cardiac insufficiencyheart failure（NYHA Classification）	○ Yes ○ None ○ Unknown If Yes ○ Ⅰ ○ Ⅱ ○ Ⅲ ○ Ⅳ			
ECG（CTO Area）	○ Normal ○ Abnormal Q Wave ○ Abnormal ST-T			
Exercise Tolerance Test	○ Not Tested ○ Negative ○ Positive ○ Unratable			
MSCT	○ Not Tested ○ Tested ○ Unknown			
Pre Op Serum-Cre	mg/dl （Date: ）	eGFR[1)]		
LVEF（%）	%	Assessment Procedure	○ UCG ○ RI ○ MRI ○ LVG ○ MSCT	
Asynergy (CTO area)	○ Normal ○ Hypokinesis ○ Akinesis ○ Dyskinesis			
Residual Myocardium	○ Existing ○ None ○ Unknown	Assessment Procedure	○ UCG ○ RI ○ MRI ○ LVG ○ MSCT	
EuroScore Ⅱ[2)]				

＜pretreatment therapeutic strategy＞

Target revascularization[1)]	○ Plan for Target revascularization ○ non complete revascularization
	If choose "No" for target revascularization residual artery: ☐ RCA ☐ LAD ☐ LCX ☐ LMT ☐ Graft
	Reason of incomplete revascularization: ☐ Residual myocardium ☐ small vessel／small Myocardial perfusion ☐ Technically difficult ☐clinically significance

1) Plan for Target revascularization: It has a significant lesion（main coronary branch） for complete revascularization

2) Treating period（staged PCI）regardless of the times of hospitalization

＜Coronary lesion Basic information＞

Multivessel disease[1)]	☐ SVD ☐ DVD ☐ TVD ☐ LMT + MVD	
Significant lesions of Coronary artery	☐ RCA	☐ 1 ☐ 2 ☐ 3 ☐ others
	☐ LAD	☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10
	☐ LCX	☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15
	☐ LMT	☐ ostium ☐ body ☐ bifurcation
	☐ Graft	☐LITA ☐RITA ☐RA ☐SVG ☐GEA
	Graft Anastomosis destination: ☐ →RCA ☐ →LAD ☐ →LCX	
	Comment	
CTO artery	☐ RCA ☐ LAD ☐ LCX ☐ LMT ☐ Graft	

（if graft is intact, grafted native artery non-CTO）

Jeopardized Collateral	○ Yes ○ No ○ Unknown
	If yes, have been treated with donor artery before CTO_PCI: ○ Yes ○ No

標的 CTO 病変数	○ 1 lesion ○ 2 lesion
標的病変枝	☐ RCA ☐ LAD ☐ LCX ☐ LMT ☐ Graft
	Graft anastomosis: ☐ →RCA ☐ →LAD ☐ →LCX

Only select by Core laboratory（Operator is NOT required）		
Preparative angio image	○ Yes ○ No	
Syntax Score[2)]		○ acalculia
The propriety of Anatomical adaption	○ Yes ○ No ○ unevaluable 「No」: ○ Did not admit the same current level as main coronary artery or main coronary artery branch ○ TIMI≧1 ○ Tandem OR same main coronary artery branch ○ Other （ ）	

1) staged PCI の場合、一連の PCI 前の罹患枝数

2) Syntax Score:(http://www.syntaxscore.com/)

※ : **Needs to be filled out by both operator and core laboratory**

※ : **Needs to be filled out by core laboratory (operator is not required)**

☐ **Check box: Select from plurality items**

○ **Radio button: Choose only one**

＜CTO lesion background（lesion①）＞

CTO lesion parts	○ RCA	AHA classification ○ 1 ○ 2 ○ 3 ○ other
	○ LAD	AHA classification ○ 6 ○ 7 ○ 8 ○ other
	○ LCX	AHA classification ○ 11 ○ 13 ○ other
	○ LMT	Part or occlusion ○ body ○ bifurcation ○ ostium
	○ Graft	○→RCA ○→LAD ○→LCX
ISR_CTO	○ No ○ Yes 「Yes」- Occlusion STENT classification：○ BMS ○ DES ○ BVS	
Evaluation of occluded period	○ unable to evaluate ○ evaluation through medical history ○ confirmed through CAG “evaluation through medical history” or “confirmed through CAG”：Occluded period （ months）	
History of CABG for CTO branch	○ No ○ Yes（with graft failure） ○ Yes（no graft failure）	
History of PCI for CTO	○ No ○ Yes If “Yes”： ☐ antegrade only ☐ retrograde only ☐ ante＋retrograde ☐ Unknown Same operator： ○ Yes ○ No	
Reason of failure	☐ failure of CTO passage through GW ☐ failure of retrograde acces ☐ failure of device passage ☐ Complication ☐ Unknown ☐ Other （ ）	
CTO treatment strategy before operation（Free words）		

Only select by Core laboratory（Operator is NOT required）	CTO judgment	○ CTO ○ sub total ○ non-CTO
	CTO position	○ ostial ○ proximal ○ mid ○ distal
	Tandem CTO [1]	○ No ○ Yes
	Branching CTO [2]	○ No ○ Yes ☐ entry ☐ exit
	Reference vessel diameter	○ unable to evaluate ○ ≧3.5mm ○ 3.5-3.0 ○ 3.0-2.5 ○ ＜2.5mm
	Length of occlusion	○ unable to evaluate ○ ≧20mm ○ <20mm
	collateral artery	○ No ○ Ipsilateral ○ Contralateral ○ Ipsilateral＋Contralateral
	collateral circulation [3]	○ CC0 ○ CC1 ○ CC2
	Calcification [4]	○ None ○ Minor ○ Moderate ○ Severe
	tortuosity [5]	○ Straight ○ Minor ○ Moderate ○ Severe ○ Unable to evaluate
	CTO entry shape [6]	○ Tapered/Tunnel ○ Blunt ○ No Stamp ○ Unable to evaluate
	CTO stump contrasting	○ Good（same density as inlet） ○ Poor（less density than inlet） ○ unable to evaluate trough contrast
	CTO distal vessel diameter	○ ≧3.0mm ○ 3.0-1.0mm ○ <1.0mm ○ Unable to evaluate

1) Several CTO's at the same main branch
2) an existence of collateral with a diameter over 1mm at the CTO inlet or outlet , and has series of CTO lesion at the collateral inlet.
3) maximum diameter of channel（CC0:no series of channel、CC1:≦0.4mm、CC2＞0.4mm）
4) Minor：interspersed calcification, Moderate：calcification under 50%of diameter of blood vessel , Severe：calcification over 50%of diameter of blood vessel
5) Straight：a bending of under 70° or none, Minor：a bending of over 70°, Moderate：2 bending's of over 70° or a bending of 90° severe：2 bending's of over 90° or a bending of over 120°
6) blunt  no stump 

＜CTO procedure info（lesion1）＞

Recanalization approach（Recanalization approach） *Required to be filled out for all procedures	
Access site for CTO branch	☐ femoral ☐ radial ☐ brachial
guiding catheter for CTO branch	☐ 5Fr ☐ 6Fr ☐ 7Fr ☐ 8Fr
Strategy	○ Antegrade only ○ Retrograde（+Antegrade） ○ Retrograde(+Antegrade) Unsuccessful → Antegrade
Crossing of CTO GW	○ Successful ○Unsuccessful ○ Unable to verify
Examination time through GW crossing	○ Min. ○Unknown
Usage of IVUS	○ Yes ○ No If "Yes"： ☐entry Identification ☐wire guide ☐reverse CART ☐Other（ ）
First crossing device via antegrade	○ Crossed ○ Uncrossed If "Crossed" ☐ Rx ☐ OTW ☐ Penetration catheter ☐ Rotablator ☐ Laser ☐ Other（ ）
Special technique for crossing the device via antegrade (Final)	○ Yes ○ No If "Yes"： ☐Balloon anchor ☐Tornus ☐Parent and child catheter ☐Crushed wire ☐Rota-wire replacement ☐Other（ ）

※ : **Needs to be filled out by both operator and core laboratory**

【Definitions of the strategies】

① **Antegrade only**

Case in which started method without the possibility of Retrograde and finished the method only with antegrade OR Case in which retrograde was suspected, but did not try crossing retrograde channel（injection、contrast medium came through but channel untouched）and finished with only antegrade。

In case of this category been chosen, only "antegrade only" item needs to be filled out（other categories are not required）

② **Retrograde（+Antegrade）**

Including Case in which Retrograde channel crossed and prepared for Retrograde but wire continuously crossed antegrade Retro +Ante technique（Kissing wire Cross,Reverse CART,CART etc.）

③ **Retrograde(+Antegrade)Unsuccessful → Antegrade**

Cases in which; Failed to cross Retrograde channel / Unable to complete operation due to complication (EX; perforation、dissection、Thrombus) of Retrograde system/ Operation continued after removing retrograde system

In this chosen category, retrograde+antegrade items are required to be filled out

＜CTO Procedure information（Lesion1）＞

【STENT inforamtion lesion1】	
Stenting	○ Yes ○ No
Used STENT	☐ BMS ☐ DES ☐ BVS
Bifurcation stenting	○ Yes ○ No If “Yes”, bifurcation stenting method： ☐ single stenting ☐ double stenting
Number of stent- CTO branch only	（ ） For over 2 stents- stent overlap： ○ Yes ○ No
Maximum diameter of the used stent	○＜2.5mm ○2.5～2.9 ○3.0～3.4 ○＞3.5mm
Sum of stent length	mm （The sum of stent length used for CTO branch）
Used DES	☐ Promus ☐ Xience ☐ Nobori ☐ Resolute ☐ Endeavor ☐ Ultimaster ☐ Synergy ☐ Other product name （ ）
post STENT balloon	Post dilatation（MAX） mm
Usage of DEB	○ Yes ○ No If yes, DEB diameter： mm

【Antegrade only】 *Only if “Antegrade only” was chosen at strategy.	
Usage of contrast medium	○ Yes ○ No
Crossed guide wire via Antegrade	○ Successful ○ Unsuccessful Reason of “Unsuccessful”： ☐ GW unable to pass CTO ☐ device failed to reach CTO ☐ Suspension of PCI due to complication ☐ Other（ ）
1st guide wire via antegrade	Name of product：
1st guide wire via antegrade for crossing CTO	Name of product：
Last wire /Crossed wire	○ Last（Finally used GW） ○ Crossed（GW used to cross） Name of product：

Method or special device for Last wire/Crossed wire	☐single wire ☐double wire method ☐IVUS guide crossing ☐STAR ☐Stingray ☐other technic / devices ( )
GW Usage of step up ／ step down method	○ Yes ○ No If "Yes": ○ step up ○ step down ○both
Used OTW or Penetration catheter	○ Yes ○ No If "Yes", name of product: ☐Corsair ☐Finecross ☐Crusade ☐Tornus ☐Caravel ☐GuideLiner ☐Guidezila ☐OTW ☐Other( )

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＜CTO procedure info（Lesion1）＞

【Retrograde + Antegrade】 *Fill in if chosen Retrograde＋Antegrade and retro+ante unsuccessful →ante in strategy.	
Retrograde indication	○ Accessed Retrograde for Antegrade backup, but crossed with Antegrade *If this item is chosen, fill in only the *1 parts* ○ Changed course to Retrograde due to failure of Antegrade ○ Initially scheduled to pursue retrograde (Ante/Retro order regardless)
Antegrade GW *1)	○ Yes ○ No If "yes" name of product: ( )
Antegrade start CTO GW *1)	○ Yes ○ No If "yes" name of product: ( )
Completed /Crossed Antegrade GW *1)	○ Completed (Final GW used) ○ Crossed（crossed GW） ○None If "Completed" or "Crossed", Name of product: ( )
Procedure method or special device used to complete/cross GW *1)	☐single wire ☐double wire method ☐IVUS guide crossing ☐STAR ☐Stingray ☐other technic / devices ( )
GW step up／ step down method *1)	○ Yes ○ No If "Yes": ○ step up ○ step down ○both
Antegrade-Usage of Penetration catheter /Special device *1)	○ Yes ○ No If "Yes", Name of product: ☐Corsair ☐Finecross ☐Crusade ☐Tornus ☐Caravel ☐GuideLiner ☐Guidezila ☐OTW ☐Other catheter( ) ☐Other special device( )
fluoro time for Antegrade GW *1)	○ min. ○Unknown

Attempted channel *1)	☐ septal ☐ epicardial ☐ atrial ☐ graft If "septal", Septal surfing: ○ unattempt ○ attempted but unsuccesful ○ Successful
Used channel to cross GW for Retrograde operation *1)	○ Unsuccessful ○ septal ○ epicardial ○ atrial ○ graft ○ Other( )
Approach for Retrograde channel *1)	○ Successful ○ Unsuccessful If "Successful": ○ Both GW and catheter passed ○ Only GW passed
Access site (Retrograde)	☐ femoral ☐ radial ☐ brachial
Guiding catheter (for Retrograde)	☐ 5Fr ☐ 6Fr ☐ 7Fr ☐ 8Fr ☐Retro access to ipsicollateral
GW crossed for Retro channel *1)	Name of product( )
Starting GW for Retrograde to CTO	Name of product( )
GW used up to the balloon at reverse CART	Name of product( )
Completed /Crossed Retrograde GW	○ Completed(last GW used) ○ Crossed (Crossed GW) ○None If "Completed" or "Crossed", name of product: ( )
Penetration catheter/Special device used for retrograde	○ Yes ○ No If "Yes", Name of product: ☐Corsair ☐Finecross ☐Crusade ☐Tornus ☐Caravel ☐GuideLiner ☐Guidezila ☐OTW ☐Other catheter( ) ☐Other special device( )
CTO cross method / Special device (Final /Crossed)	○ Kissing wire Cross ○ Retrograde Wire Cross ○ CART ○ Reverse CART ○ Other technique ( ) ○ Special device to cross GW( ) GW cross direction: ☐ Antegrade ☐ Retrograde
After Retrograde GW crossing, alteration for Antegrade GW	○ Successful ○ Unsuccessful ○ Unattempt Alteration method: ○externalization ○ rendezvous ○ antegrade parallel wire ○ induced by retrograde balloon expansion ○ Other ( )
Device pass	○ Device passed ○ Unsuccessful

【Retrograde indication】 ***if choice input item***

① Accessed Retrogate for Antegrade backup, but crossed with Antegrade *If this item is chosed, fill in only *1) parts

② Changed course to retrogate due to failure of Antegrade ③Initially scheduled to persue Retrograde(Ante/Retro order regardless)

If ②,③ is chosen fill in all【Retrograde + Antegrade】items.

【Definition for **Retrograde indication**】

○ Accessed Retrograte for Antegrade backup, but crossed with Antegrade （Inserted CW through Retro channel）

○ Changed course to retrograte due to failure of Antegrade

（Started procedure without the possibility of Retrograde but due to complications, Atntegrade procedure was expected to be difficult or concluded to be unsuccessful and inevitably chose Retrograde）

○ Initially scheduled to pursue Retrograde（Ante/Retro order regardless）

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＜CTO procedure information（Lesion1）＞

【**Procedure success by Retrograde**】*Fill in if chosen Retrograde＋Antegradeat at strategy	
Procedure success by Retrograde	○ Successful ○ Unsuccessful Reason for “Unsuccessful”: ☐ Unable to cross retrograde channel ☐ GW/catheter unable to reach CTO ☐ CTO crossing method unsuccessful ☐ unable to construct anterograde system ☐ Cancellation due to PCI complication ☐ Catheter failed to pass channel ☐ GW unable to cross CTO ☐ retrograte catheter unable to cross CTO ☐ anterograde device unable to cross ☐ Cancellation of PCI for other reasons （ ）
Complications by crossing channel	○ Yes ○ No If “Yes”: ☐ Channel trepanation ☐ 心室中隔血腫形成 ☐ Pericardium hemorrhage ☐ Tamponade
Complications by procedure	○ Yes ○ No If “Yes”: ☐ Coronary hemorrhage ☐ Tamponade ☐ cardiac insufficiency ☐ Retrograde dissection/ thrombus / Coronary occlusion ☐Cerebral apoplexy ☐ Other（ ） Treatment: ☐ Observation （ including preservative measures through balloon / catheter） ☐ Embolization ☐ pericardial drainage ☐ IABP ☐ PCPS ☐ Surgical operation（Including urgent CABG） ☐ Other（ ）

【Retrograde（+Antegrade）Unsuccessful → Antegrade】 *Fill in if chosen Retrograde（+Antegrade）Unsuccessful → Antegrade at strategy	
Antegrade success after alteration	○Successful ○Unsuccessful Reason for "Unsuccessful": ☐ Unable to cross CTO ☐ Device unable to attain CTO ☐ PCI cancellation due to complication ☐ Other（ ）
Operation method OR special device used for final/cross GW	☐single wire ☐double wire method ☐IVUS guide crossing ☐STAR ☐Stingray ☐other technic / devices （ ）

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＜Procedure results（lesion1）＞

【Procedure result】	
Final stricture	○ ＜10 ○ 10-20 ○ 20-30 ○ 30-50 ○ 50-90 ○ 90-100
Final runoff	○ TIMI 0/1 ○ TIMI 2 ○ TIMI 3
Main collateral obstruction	○ NO ○ YES（occlusion：sub-intimal pass）
Procedure success	○ Successful ○ Unsuccessful Reason for "Unsuccessful": ☐ Unable to cross GW ☐ PCI Complication ☐ device unable to cross ☐ lack of expansion OR poor run-off ☐ main collateral obstruction（sub-intimal pass） ☐ Other（ ）

Needs to be filled out by core laboratory (operator is not required)	
Channel to cross GW from Retrograde	○Unable to cross ○septal ○epicardial ○atrial ○graft ○Other

※ : Needs to be filled out by both operator and core laboratory

※ : Needs to be filled out by core laboratory (operator is not required)

Outcome

Succsess[1]		○ success ○ failure
Complications in a hospital	Death	○ None ○ Yes （ ○ related to PCI ○ NOT related to PCI ）
	MI	○ None ○ Probably None ○ Yes ○ Unknown →If Yes: ○ QMI ○ Non-QMI ○ Unknown *the definition of Yes is more than 3 times CK score compare to normal
	Stent thrombosis	○ None ○ Yes （ ○ coronary occlusion ○ Non coronary occlusion ）
	coronary embolization （TIMI 0-1）	○ None ○ Yes
	cerebral stroke※ (cerebrovascular event)	○ None ○ Yes（○ Non bleeding event ○ bleeding event ○ Unknown ） ※excluding TIA
	coronary artery perforation	○ None ○ Minor event ○ pericardial bleeding（No need pericardial drainage） ○ pericardial bleeding（need pericardial drainage）
	Complications at the site of Puncture[2]	○ None ○ Yes （ surgical management : ○ None ○ Yes the bleeding calling for blood transfusion or hematoma: ○ None ○ Yes）
	Emergency CABG	○ None ○ Yes
	Emergency PCI	○ None ○ Yes
	Serum Cre after procedure	mg/dl （ date of measurement : ）
	Renal dysfunction (including CIN)	□ None □ more than 25% Increase in s-Cre □ more than 0.5mg/dl increase in s-Cre

1) The definition of Success: a success of procedure without death/MI/Emergency CABG/cerebral stroke
2) The definition of Complications at the site of Puncture: blood transfusion(more than 2 units) or complications calling for surgical management

＜Outcomes for acute phase＞

★The information is not required if it is difficult to obtain for the overseas lesion★

Procedure[3]		min.	Contrast medium dose[4]	ml
Fluoroscopy time [Time]	Frontal(tube) (↓)	Time	Lesion 1	Time
			Lesion 2	Time
	Lateral(tube) (→)	Time	Lesion 1	Time
			Lesion 2	Time
Adsorbed dose (mGy)	Frontal(tube) (↓)	mGy	Lesion 1	mGy
			Lesion 2	mGy
	Lateral(tube) (→)	mGy	Lesion 1	mGy
			Lesion 2	mGy

3）Procedure time is defined as the time from the start of wire operation to the final angiography in the CTO procedure

4）Contrast medium dose is defined as the dose administered only in the CTO procedure

・Fluoroscopy time is defined as the time spent only for the CTO procedure

・Adsorbed dose is defined as the dose deposited only in the CTO procedure

The condition within a month after PCI procedure

The visit within a month(or Two) after discharge	○ Yes ○ None ○ Unknown In the case of non-visit, the contact hospital and Doctor Address Hospital TEL Doctor
CCS	○ 0 ○ Ⅰ ○ Ⅱ ○ Ⅲ ○ Ⅳ ○ Unknown
Radiating Dermatitis	○ None ○ Yes ○ Unknown If yes: ○ Only blushing ○ Ulceration ○ Requirement for surgery ○ Unknown
Serum Cre after procedure (24hr<<1month)	mg/dl （date of measurement: ）
Renal dysfunction (including CIN)	□ None □ more than 25% Increase in s-Cre □ more than 0.5mg/dl increase in s-Cre
Non-fatal MI	○ None ○ Yes ○ Unknown
Revascularization	○ None ○ re-PCI ○ CABG ○ Unknown
Cerebrovascular Disorder	○ None ○ Yes ○ Unknown
Stent Thrombosis	○ None ○ possible ○ definite ST ○ Unknown （ days）
Other complications	○ None ○ Related to CTO-PCI ○ Non-related to CTO-PCI Comments:） ○ Unknown
Death	○ None ○ Non-cardiac death ○ Cardiac death ○ Unknown Comments:）
Follow-up imaging	○ None ○ Yes ○ Unknown If yes: ○ CAG ○ MSCT, _____ days after procedure restenosis: ○ restenosis（QCA DS＞50%） ○ reocclusion ○ none